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INDUSTRY IN INDIA



A STUDY



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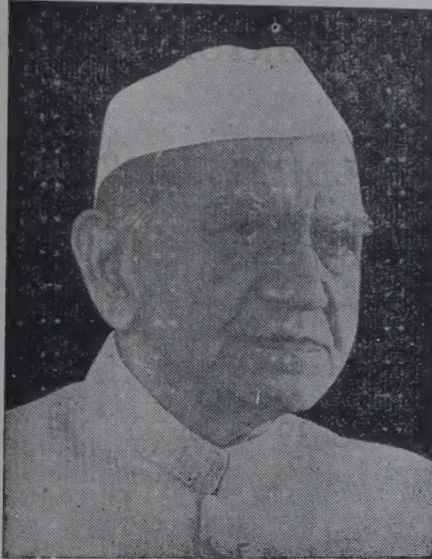
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IN MEMORIAM

FAKHRUDDIN ALI AHMED



Born: 13th May 1905

Died: 11th February 1977

President Fakhruddin Ali Ahmed died of heart attack at 8.52 a.m.

Son of Lt. Col. Z. A. Ahmed, Fakhruddin Ali Ahmed was educated at St. Stephen's, Delhi, thereafter at Cambridge and Inner Temple, London. On return to India he joined the Punjab High Court as advocate but soon he went to his ancestral home at Assam.

Ahmed was elected to the Assam Assembly in 1935 and became the Finance Minister when he was about 33. In 1938 a Congress-coalition ministry was formed in Assam and he joined the cabinet as second in rank. After some difference with the Chief Minister he reverted back to his practice at the Bar. In 1958 he returned back to politics and joined the cabinet. He was elected to Assam Assembly in 1962. In

1968 he joined Rajya Sabha and the Union Cabinet. He was fond of sports and he had played golf, football, tennis and bridge.

He married Begum Abida of Lucknow in 1945 at the age of 40 and she was 22 then. She is an amateur painter and good badminton player.

Mr Fakhruddin Ali Ahmed was elected President of India on 20th August 1974. He was Union Minister of Food and Agriculture at the time of his nomination as President. He was sworn President by Chief Justice Mr A. N. Ray on 24th August 1974.

Mr Fakhruddin Ahmed will be remembered as courteous but firm in his dealings who would never hesitate when called for decisive action.

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INTRODUCTION

In a predominantly agricultural economy like India processing of fruits and vegetables has a very significant role. Besides ensuring fuller utilisation of horticultural resources, this industry brings in substantial foreign exchange earnings. The vast potential that is offered by this industry, however, has remained untapped on account of low domestic demand resulting from high prices. This is basically due to the high costs of production and marketing as also the position of taxes and duties at various levels of production.

Of the estimated 2 million tonnes of fruits and vegetables produced in the country, hardly one per cent is processed. Further the total consumption of processed fruits and vegetables in the country is reckoned at 1,000 tonnes of which institutions like hotels and restaurants and Defence account for 15,000 tonnes; a country with population of over 600 million therefore consumes a mere 25,000 tonnes of processed fruits and vegetables—a per capita consumption of 40 g.

In view of the inadequate domestic base, the industry's production growth has tended to depend on demand emanating from Defence and export sectors. The efforts for bringing the industry to its rightful place in the country's economy would therefore warrant a two-fold strategy comprising—(i) removal of taxes and duties especially those levied on tinplate and containers, glass bottles and closures and excise on finished products for stabilising prices at a reasonable and bearable level; and (ii) building up performance efficiencies by the industry through integrated approach from raw

material stage until marketing, new product development keeping in view the regional as well as national requirements of consumers and export markets and standardisation of package designs.

The Assignment

The study has been carried out for All India Food Preservers' Association. The main purpose of the study was to assess the incidence of taxes and duties on the growth of this industry through its impact on production costs and retail prices. The study had the following objectives :

- (i) to make a comprehensive review of the growth of fruit and vegetable processing industry in India ;
- (ii) to study the problems impeding the development of industry and trade ;
- (iii) to analyse the incidence of duties, taxes and levies ;
- (iv) to study the distribution system and price spreads ;
- (v) to assess the demand (both indigenous and overseas) for the products of the industry in the next five years ; and
- (vi) to suggest measures to be taken at the level of Government, industry and trade for the orderly growth of the industry.

Scope of the Study

As per terms of reference agreed to between the Institute and the sponsors of the study, the product coverage in-

cluded all processed fruits and vegetables excluding aerated waters, synthetic jellies, synthetic syrups and synthetic vinegars. Although pickles, chutney and murabbas were marginally covered during the study, the conclusions of the study are mainly based on items attracting excise duty on finished products.

For keeping the all India perspective in view, the study covered almost all the important states where this industry is concentrated. This approach was essential from the point of view of giving a representative picture of the industry as it is thought and known that each state has a specialised set of products depending on its resource endowment and climatic conditions. Over 50 units engaged in fruit and vegetable processing, can and glass bottles fabrication and metal closures' manufacturers, located in the states of Punjab, Haryana, Delhi, Uttar Pradesh, West Bengal, Maharashtra, Karnataka and Kerala were personally contacted during the study. Besides holding discussions with the concerned institutions and organisations, information was sought through a mail questionnaire from another 50 processors.

Methodology

Prior to the conduct of the study detailed discussions were held with the sponsors in order to have a clearer and agreed view on the various objectives and areas of investigations laid down in the proposal submitted by the Institute. In order to focus attention on the main theme of the survey, i.e., domestic demand for processed fruits and vegetables, relatively less emphasis was placed on the developmental aspects of horticulture.

For identifying areas requiring concerted attention during the field survey, extensive consultations were held with concerned organisations like Subsidiary Food and Nutrition Division of the

Ministry of Agriculture and Irrigation, Army Purchase Organisation (APO), Canteen Stores Department (CSD), Department of Tourism, Ministry of Civil Aviation and Transport, Income-Tax Department, Department of Excise and Revenue, Indian Institute of Packaging, Central Food Technological Research Institute and Processed Foods Export Promotion Council. Data and documents having a reference to the study were collected from these organisations for preparing a special study plan. Based on these, checklists, questionnaires dealing with areas of which information was to be sought from manufacturers were prepared.

The field survey sought to cover a cross-section of fruit and vegetable processing industry and trade and related manufacturers. The field survey was undertaken during September-October 1976. Besides covering almost all the important units in the country, an attempt was made to contact even some small-scale units with a view to making a comparative analysis of the impact of taxes and duties as also the operational efficiencies. For ascertaining the prices at various levels of distribution and assessing the marketing costs involved in their sales a number of wholesalers/distributors, speciality food stores and chain stores were contacted.

The information collected through field/mail survey was collated and analysed in relation to the principal objectives. Besides analysing the cost structure of some of the popular brands selling in the country, the study has also attempted to provide sector-wise demand levels possible to be achieved by 1980-81 under two categories, namely—(i) without any Government relief on taxes and duties; and (ii) with removal of taxes and duties as per suggestions made in the study. For this, linear regression equation for

apparent domestic consumption were fitted. Factors like urbanisation and incomes of the affluent sector and enforcement of regulatory measures for containing disposable income were also taken into consideration while making these projections.

The Institute extends its grateful thanks to All India Food Preservers' Association for assigning this important study. Thanks are also due to the units contacted during the survey who made the task of the team easier by providing confidential and important data most unhesitatingly. The assistance provided by the dynamic

Secretary of the Association, Shri Y. K. Kapoor and their Consultant, Shri H. C. Bhatnagar, is also gratefully acknowledged.

The study was conducted by a team comprising S/Shri S. K. Kalia, S. L. Aggarwal and M. Dattatreya. The data provided in this report was compiled and tabulated by Shri H. L. Sharma.

S/Shri S. K. Rao, S. K. Upadhyaya and A. K. Monga provided valuable help in the use of quantitative techniques.

January 1977

D. N. SAXENA
Director General

CHAPTER I

HIGHLIGHTS OF THE STUDY

With a wide and varied production of 32 million tonnes of fruits and vegetables (20 million tonnes of fruits and 12 million tonnes of vegetables), the country has a rich resource base to cater to the needs of domestic as well as export markets both in fresh and processed form. Current exports of fruits and vegetables, however, constitute a very negligible proportion of total production (0.001 per cent of fruits and 0.005 per cent of vegetables) and are in no way affecting domestic requirements.

Capacity utilisation of fruit and vegetable processing industry is reckoned between 30 and 40 per cent. Fuller utilisation of capacities of the industry would lead to augmentation in output, reduction in production costs and creation of exportable surpluses. Current exports of fruit and vegetable products at around 15,000 tonnes account for less than 30 per cent of existing production but the industry has the necessary vitality for export growth as is evident from the growing exports. The industry, however, has to have a strong domestic base and also build up necessary competitive capabilities to sustain the existing foreign markets and to create new ones. There is an urgent need for a collective effort on the part of the Government, trade and industry to adopt measures for giving a boost particularly to domestic demand. Elements directly responsible for high consumer prices will have to be eliminated through withdrawal of excise duty on the packaging materials and finished products and octroi duties. The

industry in turn has to initiate measures for bringing about definite improvements in operational efficiencies, optimal utilisation of capacities, development of new products, utilisation of waste materials and by-products and cutting down marketing expenses.

Specialised Raw Materials

Raw material requirements of the industry by and large are currently met from fruits and vegetables that arrive in the market. There are, however, specialised raw materials required for manufacturing quality products particularly for the export markets. There is need to intensify efforts to develop seedless mandarins for making orange segments; bring in new areas for augmenting production of *Alphanso* and other varieties of mangoes for canning slices, pulp and juices; produce suitable varieties of peaches for canning; develop cylindrical variety of pineapples (Smooth Cayenne) for canning purposes; organise production of white onions with exacting specifications like high total solids and sugar contents for dehydration purposes; and evolve suitable varieties of tomatoes for production of tomato puree and tomato paste. Concerned State Governments with the help of ICAR should intensify their horticultural efforts for evolving and popularising the requisite varieties. Where necessary, the co-operation from National Seeds Corporation should also be enlisted.

Integrated Approach

Processing industry has to forge links with the growers of fruits and vegetables to obtain quality raw material and uninterrupted supplies to effect economies in production costs. For example, pineapple industry is organised on the basis of vertical integration of production of fresh pineapple with processing and marketing in all the major producing countries. The integration is achieved either by having own plantations or procuring supplies on the basis of contract farming. In contrast, Indian pineapple industry comprises a few small-scale units with no or limited control over the supplies of fresh pineapples. In Kerala, where processing of pineapples is concentrated, as much as 60 per cent of the total output of fresh pineapples is known to be emanating from holdings of less than a hectare, about 15 per cent from the canners' estates and the balance 25 per cent from homestead gardens. In Assam, Tripura and other North Eastern States where production of pineapple is plenty, there is hardly a processing industry worth the name. The concept of integrated approach has yet not gained acceptance with the Indian processing industry. It is high time to recognise its importance in cutting down production costs, producing quality products both for home consumption and export markets and achieving operational efficiencies.

Need For Augmenting Domestic Demand

Indian industry is yet in its developmental stage with a very negligible domestic base. Exports amounting to 15,000 tonnes representing less than 30 per cent of the total production can hardly sustain this industry. While efforts are to be intensified for accelerating exports, augmenting domestic demand is perhaps the most important need of the industry.

The domestic demand has not grown owing to high consumer prices resulting from the imposition of various taxes and duties both on the inputs and finished products. Almost all the raw materials and packing materials used by the industry are taxed at various points resulting in high production costs. Added to this, the 10 per cent excise duty on the final products renders them beyond the reach of even middle class people. In view of the manifold advantages the industry offers to the farm population in obtaining fair prices, in preventing wastages of fruits and vegetables particularly during glut seasons, in providing employment opportunities, in earning foreign exchange, in meeting Defence requirements and in providing convenience foods, the industry merits relief through—(a) removal of excise duty on the packaging materials ; (b) removal of excise duty on the finished products ; and (c) removal of octroi duty. It is envisaged that these reliefs would help to bring down cost, slash prices in the home market and provide competitive edge in foreign markets. In the event of Government granting these reliefs, the industry has to pass on the benefits arising therefrom to the consumer through proportionate reduction in prices.

Supply of Inputs Without Taxes and Duties

Sugar : Although sugar is supplied at levy prices for export production, similar facility is not extended for production meant for domestic markets. The result is that units have to buy sugar at prevailing market prices of Rs.450 to Rs.500 per quintal leading to exorbitant production costs especially for items with high sugar content like jams (where share of sugar in the total ex-factory cost of production works out to 30 to 40 per cent). The domestic consumer is unable to bear such high prices. The only effective way to reduce the cost

of such products is by making available sugar at levy price to the units. It is estimated that the total requirements of sugar by the industry would be of the order of 8,000 to 10,000 tonnes per annum at the present production levels which would mean a loss of Rs. 1.5 to Rs. 2.0 crores to the exchequer. It is considered that supply of sugar at levy price would considerably cut down cost of production and give a boost to domestic demand. However, the mechanism of supply of levy sugar for domestic production is beset with many administrative problems. Besides, there would emerge counter demands from confectionery, bakery and sweet-meat manufacturers.

Packaging Materials : Packaging materials add substantially to the cost of production. In respect of cans used for export purposes, the duties are refunded while the total impact of all the duties and taxes are passed on to the domestic consumer. It has been estimated that in the case of canned products, cost of empty cans works out to nearly 50 per cent by way of taxes and duties including import duty on tinplate, countervailing duty, excise duty on tinplate and Central and State sales tax on fabricated cans. With a view to promoting domestic sales of fruit and vegetable products, it is recommended that the duties and taxes on the packaging materials including cans and bottles may be removed.

Streamlining Distribution System

Marketing overheads also add substantially to the total consumer price. The difference of 43 to 68 per cent between the consumer prices and the ex-factory prices represents wholesale/retail margins and taxes and duties. With a view to affecting cost reduction and lowering prices there is a need to streamline the existing distribution system

through elimination of certain avoidable links in the chain of distribution. Possibilities of packing at the consuming centres instead of transporting all the way from the place of production also need immediate consideration. In respect of juices, distribution through dispensers could perhaps be the most ideal solution.

Market Intelligence

Exporters must be constantly apprised of the emerging market opportunities for fruit and vegetable products. It is also equally necessary to evolve right product-mix for new units that are to be set up for export requirements. Export potential in Middle East markets is vast and India, despite its geographical contiguity, has not fully responded to the growing demand in these markets. Although India's exports to Gulf markets are on the increase during the last three years, its share in the total volume of imports remains negligible. Planned efforts should, therefore, be initiated to study and analyse the market characteristics. Consumer requirements in terms of quality and packaging styles have to be understood and product and packaging modifications should be a continuous trend. There is a need for a full-fledged market survey in these countries and the Processed Foods Export Promotion Council should sponsor such a survey on an immediate basis.

Sales Promotion

There are practically no efforts on the part of the industry to publicise its products in the country. Consumption in the domestic market has remained confined to certain income groups mainly in the urban centres and metropolitan cities. The result is one of almost stagnant demand. Notwithstanding the escalation in prices of the products which is primarily responsible for the

sluggish demand, absence of publicity and promotion has resulted in not inducting any new class of clientele for the convenience foods. Most of the consumers are not aware of the wide and varied range of products offered by the industry. There are equally no publicity and promotion efforts to popularise the products in the semi-urban and rural areas which too might have a fairly untapped demand potential. For removing this lacuna a systematic programme of generic promotion needs to be developed on industry basis perhaps through the Association.

Similarly much publicity is not done in overseas markets as well. The Processed Foods Export Promotion Council in collaboration with the All India Food Preservers' Association should organise publicity and promotion campaigns, to begin with, in the Middle East markets. Feasibility of collaborating with manufacturer exporters/exporters of other canned food items should also be explored. In such an event a common mark/brand for all canned and bottled food items could be evolved and expenditure incidental to such publicity and promotion measures shared by all concerned on a mutually acceptable formula.

Strengthening the Capital Structure

Most of the Co-operative Societies in the industry are unable to function efficiently for want of adequate working capital and proper management set-up. It is time that a Committee is appointed to examine the working of the Co-operative Societies with a view to suggesting measures for imparting operational viabilities.

Need for Marketing Orientation

The State-run undertakings have no proper marketing orientation and deploy-

ment of man-power. Overheads are disproportionate to the total cost of production often resulting in losses.

Standardisation in Packing

There does not seem to be adequate justification for adopting various sizes in packing either in bottles or in cans for the domestic market. Already prices of the products are proving prohibitive to the consumers with these individualistic company approaches only adding to the burden of the consumer. It is, therefore, necessary to evolve standard packs for domestic market. Packing should be more functional and economical.

Qualitative improvements have to be effected in respect of products and packaging in response to the changing trends in the importing countries. For example, in Kuwait market, it is necessary to ensure that juices have 45 per cent pulp content and the packing should be in lithographed containers. Similarly, it is necessary to introduce easy open cans (flip top ends) for juices as done by most of the suppliers. Jams in bottles should have 'twist off caps' and processed peas and other vegetables should be packed in 10 oz. cans. In the absence of indigenous availability, imports should be allowed for exporting units.

For avoiding disruptions in can supplies, so common in recent years, a periodic review of the supply position is most essential. Buffer stocks of tinplate of 2,000 to 3,000 tonnes may have to be created for ensuring continuous supplies of cans.

New Product Development and Utilisation of By-Products

The product-mix of this industry has remained virtually unchanged almost since the inception of the industry. The tastes and preferences of the consumers and the climatic conditions in which they live

should be taken into consideration while developing a product. Similarly for export markets, the requirements of each of the major markets have to be kept in view.

The industry has not given necessary attention to these aspects because of the limited domestic demand and its struggle for mere survival which has been in question for quite some time. The Central Food Technological Research Institute should intensify its efforts to develop new products and popularise them among the masses. Tomato puree and tomato paste are very important items in export markets but India has yet to develop qualities of tomato suitable for these manufactures. Indian Council of Agricultural Research should address itself to the task of developing the requisite varieties of tomatoes in the country.

Popularisation of new products based on mango such as dehydrated fruit pieces of superior quality, candied mango, dried puree or an extract or essence is necessary. Mango fruit wastes (peel, stone) have the possibility of being used in compound animal feeds but ways and means for their fuller exploitation are to be explored. Mango kernels which are usually cast away have the possibility of earning substantial foreign exchange. The kernel yields oil which fetches as much

as Rs. 12,000 a tonne abroad, and the pulp after extraction sells at Rs. 550 a tonne. Because of its use as a substitute for cocoa butter, vast demand opportunities are likely to emerge from the chocolate manufacturers. Continuous search for new products would help fuller utilisation of capacities, reduce cost of production and increase domestic demand.

Creation of Additional Capacities

The Study envisages that the total demand for fruit and vegetable products would be between 80,000 and 98,000 tonnes by 1980-81. This would necessitate fuller utilisation of existing capacities as also creation of new capacities. The new export-oriented units should be set up keeping in view the export market requirements including product-mix and packaging. It is recommended that North Eastern Region which has substantial horticultural base (particularly pineapple and citrus) should be developed for the purpose. The North Eastern Council may have to extend requisite assistance to the industries in the initial period to compensate for certain of the disabilities such as transportation of packaging materials and finished products.

CHAPTER II

REVIEW OF FRUIT AND VEGETABLE PROCESSING INDUSTRY IN INDIA

Background

Fruit and vegetable processing industry has a significant role to play in the national development of a predominantly agricultural economy like India. The industry is equipped to absorb larger quantities of fruits and vegetables for processing purposes thereby ensuring fair prices to the growers and avoiding distress sales in seasons of glut. Besides, the industry helps in the economic utilisation of the horticultural produce of the relatively inaccessible areas from where transportation in fresh form is difficult resulting in improvement of the economic well-being of the people from hill and backward regions of the country. In providing employment both at the farm and the factory levels and in earning foreign exchange, the fruit and vegetable processing industry offers immense potentialities.

The inter-linkage of horticultural development with that of the fruit and vegetable processing industry and the industry's significant contribution in earning foreign exchange, in meeting the requirements of Defence forces, in providing employment opportunities and in taking care of the welfare of hill people and backward regions of the country are highlighted below :

Inter-Linkage of Horticulture with Processing Industry

Cultivation of white onions by the farmers in the vicinity of Nasik for processing : Asian Dehydrates, a firm

engaged in the manufacture and export of dehydrated onions, is mainly responsible for establishing a factory at Nasik and in motivating the farmers in the vicinity of Nasik to grow white onions for processing. The response from the farmers has been encouraging in view of the assured market for their produce. Production of white onions and emphasis on quality standards have been made possible owing to the initiative taken by this unit in setting up a factory in the onion growing belt of Maharashtra and in giving encouragement to the farmers.

Cultivation of Peas by Farmers in U.P.: The contract cultivation experiment of Hindustan Lever in its 'Hima Peas' venture of dehydrated peas at Ghaziabad was a remarkable success. With free supplies of good quality seeds, fertilisers and pesticides to three blocks of 20 acres each, the company's agricultural staff ensured that the farmers used optimal quantity of these inputs. The results were astonishingly good in reaping higher productivity and right varieties. The company, however, discontinued production for want of adequate domestic demand.

Setting up of Processing Units in Meghalaya : Meghalaya has sizeable production of citrus, pineapple, banana and other temperate fruits. The State Government is considering establishment of one/two large-scale

factories in the State in collaboration with National Agricultural Co-operative Marketing Federation (NAFED) and German Democratic Republic for commercial exploitation of the horticultural resources of the State and to create employment opportunities.

Tie-up Arrangements with the Growers: Kissan Products Ltd., Bangalore, successfully launched a scheme of contract cultivation with the growers for the production of high quality tomatoes. It is a tripartite arrangement between the National Seeds Corporation (A Government of India concern), Kissan Products Ltd. and the growers. The growers undertake cultivation of *Pusa Ruby* variety of tomatoes under the supervision of National Seeds Corporation. The farmer obtains very high yield at 10 tonnes per acre with a net return of Rs. 3,000 to Rs. 3,500 per acre. Tomatoes are supplied to Kissan Products Ltd. for processing and seeds which are separated while processing are supplied to the National Seeds Corporation. This arrangement started in 1968 with only 30 acres for production of tomatoes is now extended to nearly 300 acres and the whole crop is supplied to Kissan Products Ltd.

Importance of Fruit and Vegetable Processing Industry

Indigenous Industry: With plenty of horticultural resources estimated currently at 200 lakh tonnes of fruits and 120 lakh tonnes of vegetables, the industry has ample scope for development. Most of the raw materials required, namely, fruits and vegetables, sugar, salt, vinegar preservatives, etc. are available indigenously.

Machinery required for the industry are available indigenously. Juice extractors, pulpers, cooking retorts, etc. are available from local sources and there is hardly any need for imports. Only for items like tomato paste and tomato puree there may be need for imported machinery. Only citric acid and tinplate are imported. Even here there is every likelihood of dispensing with the imported tinplate currently used for the fabrication of cans. It is envisaged that by 1977 Rourkela Steel Plant will be in a position to meet the full requirements of the processed fruit and vegetable industry. As for the bottles, Indian glass industry is ably meeting the full requirements of the industry.

Foreign Exchange Earner: Starting off in a modest way, foreign exchange earnings from exports of processed fruits and vegetables have climbed to the level of Rs. 9.0 crores with immense potentialities to grow. The dimensions of product diversification and market expansion are very wide and during 1980's processed foods group including fruit and vegetable products are envisaged to play a more prominent role in catering to the domestic needs as well as international market requirements. With efforts to meet the packaging requirements of the industry fully based on indigenous resources, foreign exchange earning capacity of the industry is sound. A positive export bias is, however, sought to be brought about in the development of the industry.

Self-Employment Opportunities Mainly to the Rural Sector: Employment opportunities offered by this industry are plenty—to the farm population, factory workers and entrepreneurs seeking self-employment.

In view of the seasonality involved in the availability of different kinds of fruits and vegetables, processing units besides

offering regular employment also engage large casual labour. This affords opportunities for supplementary income.

It is estimated that over one lakh workers (both farm and factory) are employed on a seasonal basis. Besides, there are many other connected with the transportation, packaging and marketing operations.

Cottage scale units particularly offer self-employment opportunities. Entrepreneurs with limited capital can set up processing units with a limited range of products and cater to the neighbouring markets with limited overheads and marketing expenses. Thus fruit and vegetable processing offers self-employment opportunities to many and affords scope for setting up units in the fruit and vegetable growing belts.

Prevention of Colossal Waste: In the case of Himachal Pradesh where apples are grown in abundance, the role being played by processing units in preventing wastage is commendable. About 30 per cent of output amounting to 40,000 to 50,000 tonnes of fruits and vegetables are unfit for table purposes. Fifteen canning units in the State including the two units recently set up in the corporate and co-operative sectors are helping to process the produce. Total canning capacity of all the units operating in the State is reckoned at 3,000 tonnes of apples, of which the plant at Jarol in Mandi is run by Himachal Pradesh Marketing Corporation (HPMC), a World Bank Project. HPMC is also establishing, under the World Bank auspices, another plant at Parwanu with a capacity of 12,000 tonnes at the rate of 1,200 tonnes a day. Surplus fruit, it is estimated, would be of the order of 73,500 tonnes by 1977 and touch 94,000 tonnes by 1980.

Welfare of Hill People and Backward Regions: Processing units offer outlets

for fruits and vegetables available in the hilly areas which are relatively handicapped for lack of efficient means of transportation and communications. For example, the canning units in Srinagar concentrating on temperate fruits such as peaches, pears, cherries, plums and apricots and vegetables like asparagus, mushrooms, peas and beans offer outlets for the produce being grown 'in the nearby hill' areas. Short season of these fruits compels canning with a view to preserving them and making them available round the year.

A Vital Supplier to the Defence Forces : A very important function being performed by the industry is to meet the needs of Defence forces by supplying processed fruit and vegetable products. Hazardous tasks performed by the Defence forces in defending the frontiers of the country call for ready-to-eat foods at different heights and altitudes. In the absence of this industry, these goods are to be imported as was the case during the Second World War period.

With the increasing emphasis on the development of horticulture during the Fifth Plan period, the fruit and vegetable processing industry has a significant place in the national economy provided there is proper appreciation of its vital role and its potentialities. Domestic demand which is crucial for the healthy and orderly growth of any industry is seriously impeded by an unbearable levy of taxes and duties on the products of industry resulting in steep escalation in the costs of production with the inevitable result of high prices thereby rendering the products beyond the reach of the common man. The industry has been pleading for certain reliefs from taxes and duties so as to give a fillip to the industry with no result whatsoever.

The socio-economic benefits generated by the development of the industry

particularly to the farming population and the people of the backward regions, its role in meeting the needs of the armed forces and equally its potentialities in earning foreign exchange warrant divesting it with a dynamic approach.

A review of the industry is presented below :

Origin of the Processing Industry

The need for preservation of fruits and vegetables which are otherwise perishable necessitated development of the processing industry. Imports of processed items were disrupted as a result of First World War and consumption requirements of Defence forces called for indigenous supply of canned fruits and vegetables. The late twenties were almost the beginning for the development of the processing industry and the Second World War, causing disruption in supplies, gave a momentum to the industry. Consequently, few large-scale units came into being in Bombay, Delhi and Calcutta.

Recognising the importance and need for systematic development of the processing industry, the Government of India promulgated the Fruit Products Order in 1955 making it necessary to obtain a licence for the manufacture of fruit and vegetable products and rendering it obligatory to conform to sanitary requirements and appropriate standards of quality and composition. There was no restriction imposed on the development of this industry with licences freely granted for setting up units on any scale—home scale, small-scale or large-scale. In 1963, the Government of India set up Processed Foods Export Promotion Council to give a boost to the export efforts of the processing industry and to exploit its growing potentialities. The resulting picture is one of widespread dispersal of the industry in different

parts of the country from Kashmir to Kanyakumari and from Assam to Gujarat.

Structure of the Industry

Classification and Characteristics of the Industry: On the basis of annual value of production, processing units are divided broadly into three categories—(i) cottage scale with an annual value of production not exceeding Rs. 50,000 ; (ii) small-scale with an annual value of production not exceeding Rs. 1,00,000 ; and (iii) large-scale with an annual value of production exceeding Rs. 1,00,000.

The number of units engaged in this industry remained around one thousand during the last several years as could be seen from the table given below.

<i>Year</i>	<i>Number of Licencees</i>
1961	901
1962	929
1963	899
1964	909
1965	947
1966	946
1967	1,015
1968	1,034
1969	1,081
1970	1,094
1976	962

Based on 1970 data* which gives fairly a representative idea of the industry, there were 835 cottage scale, 74 small-scale and 185 large-scale units of a total of 1,094 units. Among the 185 large-scale units, classification in terms of output was as follows :

<i>Value of Production</i>	<i>Number of Units</i>
(i) More than Rs. 1 lakh up to Rs. 5 lakhs	105
(ii) More than Rs. 5 lakhs up to Rs. 10 lakhs	23

* Unit-wise production data subsequent to 1970 is not available.

(iii) More than Rs. 10 lakhs up to Rs. 15 lakhs	16
(iv) More than Rs. 15 lakhs up to Rs. 20 lakhs	8
(v) More than Rs. 20 lakhs	33
Total	185

The last category of 33 units with an annual value of production exceeding Rs. 20 lakhs though accounting only for 3 per cent of the total number of units represented 74 per cent of the total value of output.

In terms of quantity it was found that 28 units were having production of over 1,000 tonnes per annum. These 28 units which accounted for 2.6 per cent of the total number of units contributed to the extent of 77.7 per cent of the total quantum of output. Classification of units both in terms of quantity and value is shown in Annexure 1.

There were 27 units registered with the DGTD of which Hindustan Lever Ltd., Ghaziabad; Indo-Bulgar Foods, Ghaziabad; and Tata Oil Mills Co. Ltd., Ghaziabad, have since closed operations. There are at present 24 units on the list of DGTD as shown in Annexure 2. Capacity of organised units taken on the maximum utilisation of plant and machinery has been reckoned at 94,000 tonnes. In view of the seasonal nature of the industry, the installed capacity of these units, on the basis of maximum utilisation varying between 150 and 200 days, might be taken at 65,000 tonnes per annum. Even the utilisation of the capacity is low to the extent of about 40 per cent.

Production of fruit and vegetable items

by the DGTD units during the last four years was as follows :

Year	Tonnes
1972	24,738
1973	25,600
1974	26,500
1975	24,400

Source : Annual Report of DGTD

It is evident that contribution by large-scale units is most significant in terms of total production. Large-scale production becomes inevitable for a unit to be efficient because of the seasonality and the perishable nature of fruits and vegetables. Availability of fruits and vegetables being seasonal it is necessary to process them in bulk during the season from the angles of availability and economy. In addition, export orders as well as Defence requirements are to be executed in bulk. Even the domestic demand comprising institutional and individual requirements warrants product availability in bulk to meet the demand round the year. Large-scale production is reckoned to be an essential pre-requisite for efficient operation of this industry.

In 1976, there were in all 962 units of which 204 units were in Maharashtra, Uttar Pradesh, Delhi, Punjab and West Bengal. Tamil Nadu, Kerala and Karnataka together had 751 units representing 78 per cent of the total. Number of units in each state is shown in Annexure 3.

Production

All India production of FPO¹ products showed continuous increase while production of fruit and vegetable products after witnessing a steady growth until 1965

¹ FPO products include all the fruit and vegetable products plus synthetic vinegars, aerated fruit beverages, synthetic syrups and synthetic jellies while fruit and vegetable products exclude these four product groups.

has been subjected to fluctuations. This has been mainly due to unsteady domestic demand. Table 1 indicates trends in production since 1961.

Growth of the Industry

Processed fruit and vegetable industry witnessed commendable growth (8.1 per cent during 1961-67) and thereafter the progress of the industry has been very slow. In the subsequent years, the pro-

gress has been severely hit by Government's introduction of partial decontrol of sugar and withdrawal of levy sugar in 1967; the lower output in 1968 is indicative of its impact. The industry received a further set back in 1969 when the processed fruit and vegetable products were brought under Central Excise levy at 10 per cent ad valorem. This step inflicted a severe blow with the industry not recording any appreciable growth in subsequent years (The growth

TABLE 1. *Production of Processed Fruits and Vegetables*

			Quantity : Tonnes Value : Rs. lakhs			
Year	No. of FPO Licences		FPO Products		F & V Products	
			Quantity	Value	Quantity	Value
1961	..	901	47,762	656.02	28,569	460.28
1962	..	929	52,079	782.70	32,657	579.57
1963	..	899	62,120	936.55	34,856	660.94
1964	..	909	72,610	1118.55	38,311	776.98
1965	..	947	90,210	1471.47	45,143	1001.60
1966	..	946	95,143	1727.15	42,002	1040.06
1967	..	1015	98,324	1946.19	45,542	1252.92
1968	..	1034	119,207	2485.58	40,158	1175.45
1969	..	1081	147,436	2880.08	42,404	1216.26
1970	..	1094	156,033	3266.40	49,116	1438.44
1971 ^a	..	NA	NA	NA	NA	NA
1972 ^a	..	NA	NA	NA	NA	NA
1973 ^a	..	NA	NA	NA	NA	NA
1974	..	NA	165,020	5864.61	53,528	2682.38

Source : (i) Directorate of Marketing and Inspection, Nagpur (for data until 1970)

(ii) Subsidiary Food and Nutrition Division, Ministry of Agriculture and Irrigation, New Delhi (for data for 1974)

^a The Directorate of Marketing and Inspection, Nagpur, last published in 1972 statistics of production and exports of fruit and vegetable preservation industry in India for the year 1970. This publication which brought out statistics product-wise, category-wise, state-wise, etc. in a comprehensive manner, year after year, was discontinued thereafter. The Subsidiary Food and Nutrition Division which is looking after various functions including compilation of statistics brought out only a data sheet giving production of fruit and vegetable products during 1974. This left a gap in production statistics for the years 1971, 1972 and 1973.

of the industry during 1967-74 was 2.3 per cent). The overall increases in cost of production resulting from various levies and duties (Central sales tax, State sales tax, excise, octroi), high prices of raw materials (particularly sugar), high prices of packaging and packing materials, escalating costs of conversion, mounting overheads, increasing cost of transportation and finally the increases in marketing expenses—all have contributed to high prices of the products thereby tendering them out of reach of the common man.

The impact of governmental policy on domestic production has its ramifications on exports as well as domestic consumption. The export growth at 16.4 per cent during 1961-67 slumped to 7.3 per cent during 1967-74 and growth in domestic consumption dipped to 1.4 per cent from 7.1 per cent during the period. Production, export and domestic consumption of processed fruits and vegetables are shown in Annexure 4. Item-wise growth in the production of fruit and vegetable products is presented in Table 2.

TABLE 2. *Growth in the Production of Fruit and Vegetable Products**

		Percentage increase		
		1961 to 1967	1967 to 1974	1961 to 1974
		Quantity	Quantity	Quantity
Fruit juices and pulps	..	Grown more than three-fold	15.7	Grown more than four-fold
Pickles	..	21.6	56.3	89.9
Fruit squashes, syrups, nectars and ready-to-serve beverages	..	54.5	-6.2	45.1
Canned vegetables	..	45.0	9.5	58.7
Canned and bottled fruits	..	77.5	-16.7	47.9
Fruit preserves	..	-9.0	25.4	14.3
Fruit jams, jellies and marmalades	..	55.5	-13.7	34.2
Tomato products	..	15.4	30.4	50.6
Frozen fruit products	..	Grown manifold	Grown more than nine-fold	Grown manifold
Chutneys	..	0.9	34.4	33.2
Dehydrated fruits and vegetables	..	Grown more than twelve-fold	51.2	Grown manifold
Other products	..	Grown more than three-fold	-12.5	Grown more than three-fold
Candied and crystallised fruits	..	Grown more than two-fold	-24.0	88.1
Total	..	59.4	17.5	87.4

* Excluding synthetics

Product Mix and Production Pattern

Product mix of the industry broadly comprised 13 categories on the fruits and vegetables side and 4 categories

on the synthetics side. Product categories and items manufactured in respect of each category are given below :

Product Category	Principal Items Manufactured
A. Fruit and Vegetable Products	
1. Canned and bottled fruits ..	Pineapple ; Mango ; Orange and Others
2. Canned vegetables ..	Potatoes ; Peas ; Mushrooms and Others
3. Fruit jams, jellies and marmalades	Mixed fruit jam ; Mango jam ; Pineapple jam ; Orange jam ; Mango jelly ; Pineapple jelly ; Guava jelly ; Orange jelly ; Other jellies ; Orange marmalade and Other marmalades.
4. Fruit juices and pulps ..	Mango juice ; Pineapple juice ; Orange juice ; Apple juice ; Lemon juice ; Other juices ; Mango pulp ; Pineapple pulp ; Orange pulp ; Apple pulp and Other pulps.
5. Candied and crystallised fruits ..	Candied and crystallised fruits
6. Fruit preserves ..	Amla ; Apple ; Mango and Others
7. Chutneys ..	Mango and Others
8. Pickles ..	Mango ; Lime ; Mango slices in brine
9. Tomato products ..	Canned ; Ketchup, sauce, puree, etc.
10. Fruit squashes, syrups, nectars and ready-to-serve beverages	Mango squash ; Pineapple squash ; Orange squash ; Lemon squash ; Other squashes ; Mango syrup ; Pineapple syrup ; Orange syrup ; Other syrups ; Mango nectars ; Other nectars ; Mango R.T.S. ; Pineapple R.T.S. ; Orange R.T.S. and Other R.T.S.
11. Dehydrated fruits and vegetables.	Peas ; Mango ; Banana ; Potatoes, Onions and other vegetables
12. Frozen fruits/products ..	Frozen fruits/products
13. Other products ..	Other products
B. Synthetic Products	
1. Synthetic jellies	—
2. Synthetic syrups ..	—
3. Synthetic vinegar ..	—
4. Aerated waters ..	—

Product-mix of the industry underwent a perceptible change in recent years. Fruit juices and pulps whose production was low until 1967 became very important and have since then occupied a predominant position in production ; this was mainly due to a spurt in export market demand. Other important items from production point of view were fruit

squashes, syrups, nectars and R.T.S. beverages, pickles and canned vegetables.

Mango and pineapple are most prominent among fruit juices and pulps, mango and mixed vegetables among pickles, orange and lemon among squashes, and peas and potatoes among canned vegetables.

TABLE 3. *Product-mix of the Industry in Order of Importance*

(Quantitative Terms)

Year	Squashes, syrups, nectars, etc.	Pickles	Canned vege- tables	Fruit preserves	Canned and bottled fruits	Fruit juices and pulps	Jams, jellies and marmalades	Tomato products	Chutneys	Other products	Candied and crystallised fruits	Dehydra- ted fruits vegeta- bles	Frozen fruit products
1961	..	1	2	3	4	5	6	7	8	9	10	Nil	Nil
1962	..	1	3	2	4	7	6	5	8	9	10	12	13
1963	..	2	3	1	4	5	6	7	8	9	10	12	13
1964	..	3	2	1	6	5	4	7	8	9	10	12	13
1965	..	2	3	1	6	4	5	7	8	9	11	10	13
1966	..	1	4	2	5	6	3	7	8	9	10	11	13
1967	..	2	4	3	7	5	1	6	8	9	10	11	12
1968	..	2	4	3	7	5	1	6	8	9	10	11	12
1969	..	3	2	4	6	5	1	7	8	9	10	11	12
1970	..	2	3	4	6	5	1	7	8	9	11	10	13
1974	..	3	2	4	6	5	1	7	8	10	12	11	9

Table 3 indicates pattern of produc-mix of the industry in order of importance during 1961-74.

Product composition of processed fruit and vegetable in India is presented in Table 4.

TABLE 4. *Composition of Fruit and Vegetable Products**

(In percentage)

		1961		1967		1974	
		Qty.	Val.	Qty.	Val.	Qty.	Val.
Fruit juices and pulps	...	8.3	10.1	19.3	18.4	19.0	20.8
Pickles	..	18.3	10.9	14.0	7.8	18.5	12.7
Fruit squashes, syrups, nectars and beverages	R.T.S.	19.1	18.0	18.5	18.8	14.8	16.6
Canned vegetables	..	16.5	16.4	15.0	11.6	13.9	11.5
Canned/bottled fruits	..	8.4	11.0	9.4	10.2	6.7	7.6
Fruit preserves	...	10.2	7.9	5.8	5.7	6.2	5.9
Fruit jams, jellies and marmalades	..	7.7	11.4	7.5	10.4	5.5	9.3
Tomato products	..	6.1	7.5	4.4	5.1	4.9	6.1
Frozen fruit products	..	Neg.	Neg.	0.6	1.2	4.6	1.4
Chutneys	..	4.7	6.0	2.9	3.5	3.4	3.3
Dehydrated fruits and vegetables	...	Neg.	Neg.	1.1	5.6	1.4	4.0
Other products	..	Neg.	Neg.	1.2	1.5	0.9	0.6
Candied and crystallised fruits	..	Neg.	Neg.	0.3	0.4	0.2	0.2
Total	..	100.0	100.0	100.0	100.0	100.0	100.0

* Excluding synthetics

Mango products are by and large manufactured in most states while production of certain specialised items are confined to only ten states. This is evident from the pattern of output of pineapple products in Kerala; mango, orange and lemon products in Maharashtra; mango, pineapple and tomato in Karnataka; mango, tomato, canned peas and canned potatoes in Uttar Pradesh; pineapple and orange products in Assam; apple products in Himachal Pradesh and pears, peaches and cherries in Jammu and Kashmir.

Marketing Outlets

Processed fruits and vegetables industry has two distinct marketing outlets—(i) Export market; and (ii) Domestic market. The domestic market comprises—(a) Defence sector; (b) Institutional sector; and (c) Individuals. Institutional sector is mainly represented by hotels and restaurants, hostels, airlines.

Exports—Exports which accounted for about 9 per cent of production in 1961 claimed a share of about 19 per cent in 1974 and about 27 per cent in 1975.

Exports are the most dynamic sector of the industry, with large potential to grow in the ensuing years. Quantum of exports during 1975 was 14,000 tonnes of processed fruit and vegetable products.

Among the processed fruit and vegetable items exported from India, about 10 items viz. mango juice, pickles, mango chutney and others, mango slices in brine, mango pulp, pineapple slices and

others, mango nectar, dehydrated onions, pineapple juice and canned vegetables are important.

Though there are exports from all parts of the country, exports from Western Zone rank first followed by Southern Zone, Northern Zone and Eastern Zone. Table 5 indicates zone-wise contribution to India's exports of processed fruit and vegetable products.

TABLE 5. *Zone-wise Contribution to India's Exports of Processed Fruit and Vegetable Products*

		Qty : Tonnes Val : Rs. lakhs									
Year		Western Zone		Southern Zone		Northern Zone		Eastern Zone		All-India	
		Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1974	..	5,707 (57.2)	305 (59.1)	2,241 (22.5)	127 (24.6)	612 (6.1)	25 (4.8)	1,420 (14.2)	59 (11.4)	9,981 (100.0)	516 (100.0)
1975	..	6,409 (44.8)	376 (50.5)	3,624 (23.9)	175 (23.5)	2,434 (17.0)	98 (13.2)	2,039 (14.3)	94 (12.6)	14,306 (100.0)	744 (100.0)

Figures in brackets indicate percentage to the total

Source : Subsidiary Food and Nutrition Division, Ministry of Agriculture and Irrigation, New Delhi.

In the product composition of exports from each zone in the country, distinctive pattern is evident based on the resource potential of each region. While mango juice dominates exports of both Southern and Northern zones, pickles rank first among exports of Western Zone and mango chutney among exports of Eastern Zone. Similarly while exports of mango slices in brine are by and large confined to Western Zone, exports of pineapple slices largely emanate from Southern Zone and to a certain extent from Eastern Zone and Western Zone. Bulk of exports of dehydrated onions is from Western Zone.

Annexure 5 indicates zone-wise exports of processed fruit and vegetable products from India along with their ranking. Detailed analyses of India's exports, product composition, desti-

national pattern and new opportunities and tasks are provided in the Chapter on Demand Analysis.

Defence:—An important outlet for the products of the industry is provided by the Defence sector. There is a firm demand from Army Purchase Organisation (APO) which varied between 5,000 tonnes and 8,000 tonnes per annum valued between Rs. 2.5 crores and Rs. 4.5 crores during the recent years. Viewed in the context of total production of processed fruits and vegetables in the country, APO demand represents only 10 to 15 per cent. About 70 per cent of APO's purchases are for canned and dehydrated vegetables and the balance of 30 per cent are for canned fruits and jams. Canteen Stores Department (CSD) also purchases fruit and vegetable

products and their annual purchases ranged between 3,000 and 4,000 tonnes. About 80 per cent of CSD's purchases represent fruit products and the balance 20 per cent are vegetable products. In all total purchases by Defence can be reckoned between 8,000 and 10,000 tonnes per annum.

Institutional Buyers—Hotels and Restaurants, Airlines and other bulk buyers constitute this group and their consumption has been estimated between 7,000 to 10,000 tonnes per annum.

Household Consumers—Balance of production after Defence and Institutional demand is normally taken to represent household demand. This has been estimated to be between 20,000 and 25,000 tonnes per annum.

A detailed discussion on demand is provided in the Chapter on Demand Analysis.

Problems of the Industry

Discussions held with a cross-section of the fruit and vegetable processing industry indicate that the slow/static growth of the industry is attributable to the following :

Sluggish Demand and High Consumer Prices

Consumption habits of a large segment of Indian population do not normally permit the use of the products of the processed fruit and vegetable industry. Each section of the people from North to South and East to West have marked differences in their consumption habits, tastes and preferences with the result the processed fruit and vegetable items are being consumed by a limited section of population who are relatively well off, and live in cosmopolitan cities and big towns. The items of the industry, therefore, have continued

to be in the knowledge and use of relatively few and have not become popular with the masses. Despite the vast population, the demand for the products has remained meagre. Moreover, India, being a vast country with varied geographical climates and soil conditions, is ideally equipped to grow a large variety of fruits and vegetables. All the year round availability of some fresh fruit and vegetable or the other has also curtailed consumption of processed items.

There are also doubts, misgivings and wrong notions prevalent among people about the quality and nutritional aspects of the processed items compared to fresh. This aspect is also affecting the demand in substantial measure.

There is, however, domestic demand from Defence and institutional sector viz. hotels, restaurants, hostels and airlines. But their demand is not growing in any appreciable degree. Moreover, Defence supply business is a specialised one and only few units are able to undertake it.

The steep escalation in the cost of various inputs viz. raw materials, packaging and packing materials, conversion costs, transportation costs, marketing costs have substantially pushed up the prices of the products of the industry resulting in retarded growth in demand. The multiplicity of government duties and taxes on almost each and every input of the industry has further aggravated the position with prices registering more than a three-fold increase during the last 15 years (the increase is particularly pronounced after 1970). The domestic market has therefore not grown in proportion with the growth in population and the rise in per capita income. The following price index of the products of the industry clearly reflects the phenomenal increase in prices over the years.

Price Index of the Products of the Processed Fruit and Vegetable Industry

1961	:	100.00
1962	:	100.00
1963	:	106.20
1964	:	106.20
1965	:	113.93
1966	:	127.15
1967	:	158.03
1968	:	170.49
1969	:	176.28
1970	:	187.89
1971	:	195.68
1972	:	245.66
1973	:	290.59
1974	:	356.73
1975	:	356.73
1976	:	362.89

Steep Increase in Cost of Production

There has been a steep increase in the cost of production of processed fruit and

vegetable items leading to high consumer prices with the resultant sluggish domestic demand. This phenomenon has caused curtailment in production and severe under-utilisation of capacities. Lower capacity utilisation once again resulted in pushing up the cost of production.

Major factors responsible for high cost of production and resultant high prices in the home market include—(a) Purchase of sugar at Rs. 450 to Rs. 500 per quintal (Sugar accounts for 30 to 35 per cent of the total cost in jams and 25 to 30 per cent in respect of squashes); (b) High cost of packaging materials particularly cans [A 2½ size can (850 g) in the total cost of production of pineapple slices accounts for 30 to 35 per cent]; and (c) Multiplicity of taxes and duties at various stages. Share of taxes and duties in the ex-factory cost of production has been discussed in Chapter VI.

Overall increase in the cost of production of selected items is indicated below :

(IN RUPEES)

Item	Pack Size	Ex-Factory Cost	
		1968	1976
Orange squash	.. 12 × 680 ml bottle	30.29	57.97
Pineapple slices	.. 24 × 850 g (A 2½ cans)	.. 45.74	140.16
Tomato ketchup	.. 24 × 360 g. bottle	.. 32.33	68.87
Green peas	.. 24 × 850 g. (A2½ cans)	.. 47.63	92.56
Tomato juice	.. 24 × 850 g.	.. 57.00	181.52

Source : Field Survey

Cost of production has great ramifications in the ultimate consumer prices of fruit and vegetable products and the domestic demand. It needs no emphasis to say that a strong and growing domestic demand is vital for the growth of the industry and for accelerating exports.

Cost structure analysis of the industry is given in Chapter VI.

Constraints of Finance

Units with an annual output of more than Rs. 2 million are hardly 30 to 35

contributing 75 to 80 per cent of the output. Because of the seasonality involved in the availability of fruits and vegetables for a unit to be efficient and export-worthy, it is necessary to have the capability to process larger quantities of raw material that would be sufficient to meet the demand round the year. This calls for larger investments which most of the cottage scale and small-scale units are unable to generate. Even the large-scale units are subject to considerable difficulties in procuring requisite finances from banks. In view of the seasonality involved in the availability of fruits and vegetables and the need for maintaining larger inventories for executing export orders, banks should grant higher credit limits to the processing units. The credit limit norms, adopted for industries where there is no seasonality factor involved in the availability of the raw materials, should not be applicable to this industry.

Lack of Inherent Viability

It is known that of about 1,000 units comprising the industry, only brands of a handful of units are of national character with wide-spread distribution. It was reported that cost of production of even some of the established units is high resulting in losses. They, however, continue to be in production in the hope that the industry would be able to flourish in future.

It was claimed that the 'efficient units' are able to continue in production because of their diversified operations, superior marketing skills and lower per unit marketing costs. For example M/s Herbertsons Ltd., Bombay, which is one of the few good units in the country having established a name for their brand 'Dipy', have the sole selling agency for Western and Southern India in respect of 'Old Spice' products viz. aftershave lotion, cologne, brilliantine,

hair cream, brushless shaving cream, lather shaving cream and talcum powder and Woodward's gripe water. They have also all-India sole selling agency in respect of Finit Insecticide Liquid and Finit sprayers and Royal Treasure Rum and No. I Honey Bee Brandy. Similarly, Dr. Writer's Chocolates and Canning Co., Bombay, besides manufacturing canned fruit and vegetable items, market a variety of chocolates. Kissan Products Ltd., Bangalore, a leader of this industry are under the overall management of United Breweries Ltd., Bangalore. Consumers for both these product categories especially in the institutional sector being the same the marketing of their products is easier and economical. Same is the case with Mohan Meakin Brewries Ltd., Mohan Nagar, Ghaziabad; Corn Products Pvt. Ltd., Bombay, whose brand 'Rex' is a household word in India, has been reportedly incurring losses in this sector, but continues to be in production because of its diversified operations and easy marketing access through their wide distribution network [Corn Products Co. (India) Pvt. Ltd. are producing a number of consumer products including glucose, cerelese, corn flours, custard powder, gelatine, jelly crystals].

Maharashtra Agro Industries Development Corporation (MAIDC) Ltd., Bombay (A Government of Maharashtra Undertaking), acquired fruit processing factory (popular brand 'Noga') at Nagpur in 1971-72 and started commercial operation since 1972. The unit had a capital investment of Rs. 24 lakhs and a rated capacity of 8 tonnes per day or 2,400 tonnes per year. The factory is located in the orange growing belt of Maharashtra and a variety of fruit and vegetable items including orange segments are produced. Marketing of these products is organised through the distributors like MAFCO Ltd., Maharashtra

Small-Scale Industries Development Corporation Ltd. and Parry & Co. This unit has been incurring losses year after year despite growth in sales. The unit has been continuing its production, because MAIDC has 'diversified operations'; the Corporation is engaged in the production and sales of fertilisers, animal feeds, distribution of pesticides and insecticides and sale of tractors. In addition to the manufacturing and trading activities, the Corporation also deals in the distribution of iron and steel and wheat bran. There have been overall profits.

From the foregoing it can be inferred that the continuance or rather the 'survival' of some of the important units in the industry is on account of diversified operations rather than any inherent vitality or production efficiency.

It has been rightly emphasised that no industry can survive for long in the circumstances of almost stagnant domestic demand and dependence on the successful operations of other activities.

Lack of Integrated Approach

Tie-up arrangements with the growers of fruits and vegetables ensure procurement of right qualities, uninterrupted supplies and operational economies. Despite this, there are very few units in the country who have forged relations with the growers. This is because of inadequate appreciation of the advantages of tie-ups on the one hand and more importantly the limited domestic demand on the other. It was found that most of the units buy their requirements of fruits and vegetables directly from the 'Mandis' located near about their factories as elaborate arrangements with growers are not worthwhile and viable owing to limited requirements.

There are, however, only few units in the country having excellent supply

arrangements with the growers (see Annexure-6).

Management Problems in the Co-operative and State-run Undertakings

Although it is opined that the industry is ideally suited for location in the growing regions and equally good for development by the growers' co-operatives, in reality the working results of the co-operative units in the country leave much to be desired.

Enlisting growers' co-operation in obtaining uninterrupted quality supplies and ensuring fair and remunerative returns to the growers are the two objectives of starting growers' co-operatives. In reality all the co-operative units in the country are working in losses. It is often heard that paucity of working capital results in non-utilisation of valuable machinery and equipment. Even the grower members of the co-operative society prefer to supply their produce to these units only during glut, otherwise they sell the produce in the market for better prices ignoring the contractual obligation of supplying to the units. Sizeable investments have taken place in setting up these co-operative units with most of them possessing costliest imported machinery. These poor performances coupled with the failure of Noga have hardly had any impact on the establishments of new co-operative units in the country.

Yet another disheartening feature is the absence of any appreciation for the marketing effort by these units. The units are not staffed properly with adequate marketing personnel. There is normally one person entrusted with the task of marketing with no proper assistance and resources at his command.

The operation of state undertakings including U.P. State Agro Industrial Corporation Ltd., Lucknow; Maha-

rashtra Agro Industries Development Corporation Ltd., Bombay ; Karnataka Agro Industries Corporation Ltd., Bangalore ; and the Punjab State Co-operative Supply and Marketing Federation Ltd., Chandigarh, has shown no better performance. While it is conceded that the total demand in the country is limited and there is severe competition among various brands, most of the State undertakings lack marketing orientation and efficient deployment of man-power. The result is one of the disproportionate overheads in the total cost of production leading to losses.

Pattern of Packaging

The industry follows a variety of packaging for the products for catering to the varying requirements of domestic use sectors like Defence, institutions and individuals. Almost all the products are packaged either in glass bottles or cans. Use of poly jars is not in vogue.

The following are the trade names for different sizes of packaging :

A 2½ Can	: 850 g
1 lb./No. 1 Tall Can	: 450 g
5½ oz. Can	: 175 g
5 lb. Dalda Can	: 3400 g

Product-wise pattern of packaging is given in Annexure-7.

Wide Variations in Pack Sizes for Domestic Market—The industry is adopting many pack sizes in respect of the same product adding to the cost of production. Besides each popular brand offers products in different shapes of bottles so as to impart them a distinctive look. While the packaging materials are already proving to be unbearable burden to the domestic consumer, the individualistic approaches adopted by different units are leading to further

escalation in costs. It is also noticed that the thickness of the bottle used by one unit is vastly different from that of the other even in respect of the same size.

Differences in quantities packed in standard size bottles are also observed. For example, squashes are normally packed in 680 ml bottles, but squashes are also bottled with 600 ml, 650 ml and 670 ml. There is also packing of squashes in bottles with 720 ml, although not very common.

Similar variations in pack sizes are found in the case of other fruit and vegetable products. In a situation when the domestic demand is not picking up there does not seem to be adequate justification in having various standards and sizes of packaging which would only contribute to additional cost of production. There is, therefore, a need to evolve standards in sizes, shapes and thickness of packaging materials so as to derive the economies of large-scale production. Standard thickness in bottles would, besides ensuring less breakage in transit, reduce costs. Packing with slight variations by different units is also likely to mislead the consumers.

Need for Improvement in Quality and Packing Materials—Planned efforts are necessary to bring about qualitative improvements in products and equally in packing materials particularly for export markets. A Sales-cum-Study Team from Processed Foods Export Promotion Council that recently visited Middle East markets observed that Indian exporters are not paying adequate attention to tap the Gulf markets. It is suggested that export of juice should have 45 per cent pulp content and should invariably be packed in attractive lithographed containers. There is also the need to adopt easy open cans (Flip top ends) keeping in view the convenience of the consumer on the one hand and to be in line with

our competitors on the other. Packing juice in 260 g × 30 to a carton with pull ring ends is considered the right approach.

Simiarly 'twist off caps' are to be adopted for packing jars as these are used by the competitors. Likewise processed peas and other vegetables should be packed in 10 oz. cans. As they are not manufactured in India currently, steps should be taken for their indigenous production.

Disruptions in the Supply of OTS Cans— It is necessary to ensure that fulfilment of export orders does not suffer for want of timely availability of OTS cans. Most of the exporters pointed out that their export expansion programmes have been hampered owing to non-availability of cans. A periodic review of supply position of cans is therefore called for, to ensure adequate availability of cans so that at no point of time should exports be disrupted for want of cans. Apart from non-fulfilment of contractual obligation to export, any failure is beset with serious consequences from the importers in future. Buffer stock of tinplate of about 2,000 to 3,000 tonnes may have to be thought of to meet any sudden disruption in supplies.

Lack of Effort for Product Development

Indian fruit and vegetable processing industry has not made any effort in developing new products. Over the years, the product composition has remained virtually the same irrespective of the popularity and product acceptability. Especially when the domestic demand is not picking up, the Indian industry should have made some efforts in developing new products meeting Indian tastes and climate. For example 'Rooh Afza' sherbat made by Hamdard Dawa-khana is typically Indian and is much preferred during the hot summer months in North India. Although a wide range

of items are currently produced, very few of them really meet the Indian palate. The industry has not been able to adopt so far the marketing approach in producing the items that are really wanted by the Indian consumer, rather the industry is concentrating efforts only to sell what is produced.

With regard to new products for export development, there is hardly any effort. It is recognised that tomato puree and tomato paste have considerable export potential but not even a beginning has been made. Development of new products would also help fuller utilisation of capacities.

Inadequate Publicity and Promotion

Barring few organised units who are spending on publicity and promotion, there is no concerted effort on the part of the industry to popularise the products. There is indeed a big communication gap. The result has been that consumers are not kept informed as well as not prompted to buy. The consumer may have to discover a new product or a new brand only at the sales counter of a Department Store or grocer's shop. There is, therefore, a compelling need to undertake generic publicity in case the individual units find it too expensive to bear. Equally, publicity and promotion measures are to be mounted in the rural and semi-urban areas to induct more and more people to consume the products. While undoubtedly total turnover and rate of return on investment are crucially important in affording financial strength to spend on advertising and sales promotion, the vicious circle should be broken somewhere so that the industry can launch programmes of sales promotion to give a boost to the domestic demand.

Efforts of the Industry Association

The Industry Association has to play

a more vigorous role in the development of this industry in assisting the units on the one hand and to liaise with the Government agencies on the other. The Association has to apprise the Government on a continuous basis about the problems encountered and the likely solutions. Similarly, the Association has to keep its members informed about the market opportunities available. Marketing research is of utmost importance in understanding the developments taking place in the industry in other countries,

new product development, new machineries used, new packaging techniques, consumer tastes and preferences and emerging market opportunities. Since marketing research is beyond the reach of individual units, it is necessary for the Association to initiate marketing research programmes on a continuous basis. At the same time, the Association should impress upon its members the need to undertake new product development and to adopt high quality standards of production under hygienic conditions.

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CHAPTER III

DEMAND ANALYSIS

The total production of processed fruits and vegetables during the last five years varied between 50 and 54 thousand tonnes, with exports ranging between 10 and 15 thousand tonnes, so the production for domestic consumption varied between 40 and 45 thousand tonnes. During the year 1975-76, the production has been estimated around 55 thousand tonnes. Since exports during this year totalled 15 thousand tonnes, production for domestic consumption can be reckoned at 40 thousand tonnes.

Export Demand

Export Trends: Exports of processed fruits and vegetables expanded from 6,206 tonnes (valued at Rs. 1.80 crores) in 1967-68 to 15,420 tonnes (valued at Rs. 9.15 crores) in 1975-76 at an annual growth rate of 12 per cent (22.5 per cent in value terms), thanks to the export promotion policies pursued by the Government of India through import replenishment, duty drawback and cash compensatory support measures (See Annexure-8). Year-wise export performance has been as follows :

Quantum of exports in 1972-73 recorded a substantial increase as a result of unprecedented large purchases of mango juice. In the two consecutive years (i.e. 1973-74 and 1974-75) exports slumped because of low off-take of a number of items including mango juice and other juices. Despite the reduced volume of exports, foreign exchange earnings were substantially large and

even higher in 1974-75 as compared to 1972-73. Annual rate of growth during the period 1967-68 and 1972-73 was 20.2 per cent (in quantitative terms) and 20.1 per cent (in value terms). However, this rate of growth could not be sustained because of the fall in exports during subsequent years. In 1975-76 exports however staged a recovery almost touching the 1972-73 quantitative level and the foreign exchange earned was the highest ever at Rs. 9.15 crores, due to higher unit value realisation.

TABLE 6. *India's Exports of Processed Fruits and Vegetables*

Qty : Tonnes		Val : Rs. thousand	
Year*	Quantity	Value	
1967-68	6,026	1,80,40	
1968-69	6,723	2,22,60	
1969-70	13,536	3,45,26	
1970-71	11,495	3,34,38	
1971-72	11,219	3,29,30	
1972-73	15,576	4,50,78	
1973-74	10,402	4,20,12	
1974-75	10,288	5,64,79	
1975-76	15,420	9,14,84	

Source : Department of Commercial Intelligence and Statistics, Calcutta.

*financial Year i.e., April to March

Export Product Profile : Export product profile of processed fruits and vegetables comprised about 19 items of which 14 are related to fruit group and the balance

of 5 emanate from vegetable group. Among the individual items, mango juice and pickles and chutneys contributed over Rs. 2.00 crores each and canned mushroom over Rs. 1.00 crore in 1975-76; together they accounted for about 59 per cent of exports in 1975-76.

While item-wise details of exports are given in Annexure 9, trend of group-wise exports is indicated in Table 7.

Mango-based products ranked first in the export product profile with about 80 per cent share (70 per cent in value terms) in total export during 1967-68; it, however, gradually declined to reach 66 per cent (48 per cent in value terms) in 1975-

76. It is clear that mango products have not kept pace with the total with greater potential being shown by vegetable items. It can also be inferred that exports of mango products would be constrained beyond a particular level, the highest quantum of mango products exported so far being 13,428 tonnes in 1972-73. The recent erratic trends in exports of mango products call for intensifying marketing efforts to sustain the market demand.

Fruit products, other than mango, have remained nearly static accounting for 12 to 19 per cent during 1967-68 to 1973-74. However, during 1974-75

TABLE 7. *India's Exports of Processed Fruits and Vegetables Group-wise*

								Qty : Tonnes Value : Rs. Thousand			
Year	Mango-based products		Other fruit products		Total of fruit products		Vegetable products		Total of all items		
	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	
1967-68	..	4986	12646	1082	3224	6086	15870	138	2170	6206	18040
1968-69	..	5138	13812	1328	4768	6466	18580	257	3680	6723	22260
1969-70	..	10931	23575	2333	6517	13264	30092	272	4434	13536	34526
1970-71	..	8950	21198	2063	6157	11013	27355	482	6083	11495	33438
1971-72	..	9054	21425	1716	5366	10770	26791	449	6139	11219	32930
1972-73	..	13438	31918	1944	6974	15382	38892	194	6186	15576	45078
1973-74	..	8318	26160	1857	10838	10175	36998	227	5014	10402	42012
1974-75	..	6622	29496	2885	16766	9507	46262	781	10217	10288	56479
1975-76	..	10108	44224	4595	30404	14703	74628	717	16856	15420	91484

Note : Mango-based products include mango jam, mango juice, mango slices in brine, mango chutney/pickles with or without sugar.

Other fruit products include other jams, other juices, fruit preserved by freezing with or without sugar, other fruits in temporary preservative, fruit in air-tight containers, fruit preserved in syrup, other fruits preserved and other pickles.

Vegetables include vegetables preserved or prepared in air-tight containers, mushrooms, other dehydrated vegetables excluding garlic, asparagus or any other vegetables preserved or prepared.

Source : Compiled from Statistics published by Department of Commercial Intelligence and Statistics, Calcutta.

and 1975-76 their share improved to 28 per cent and 30 per cent respectively.

Canned vegetables have not so far showed any real growth. Export potential for these items remains relatively untapped but the future years are expected to witness greater growth in this group.

Destinational Pattern : India's exports of processed fruits and vegetables are mainly directed to three regions, viz., other Asian and Oceanian countries (including Abu Dhabi, Bahrein Islands, Dubai, Iran, Kuwait, Muscat and Oman, Qatar and Saudi Arabia), East European countries and European Economic Community (See Table 8).

Other Asian and Oceanian countries whose imports were relatively low accounted for about 20 per cent of India's exports in 1973-74. Their share gradually increased to about 28 per cent in 1974-75 and about 33 per cent in 1975-76. Gulf countries particularly contributed to the increased exports. Important markets in this region are Saudi Arabia, Kuwait, Bahrein, Dubai, Iran, Abu Dhabi, S. Ymn. People's Republic and Ymn. Arab Republic.

East European countries constituted the second important region in 1975-76

with their imports indicating both decreasing and erratic trend. Share of imports dwindling from 33 per cent in 1973-74 to 7 per cent in 1974-75 increased to 29 per cent in 1975-76. U.S.S.R. is the major buyer among the East European countries accounting for about 80 per cent of imports into the region from India. Mango juice and dehydrated vegetables are the two most important items purchased by U.S.S.R. Imports by other East European countries are very low and their purchases are sporadic and not following any definite trend.

In order of importance, European Common Market countries ranked third in 1975-76. Imports into EEC fluctuated as the percentage share of imports varied from 28 (1973-74) to 43 (1974-75) to 21 (1975-76). U.K. is the predominant buyer accounting for over 90 per cent of imports of the Common Market from India. Indeed, U.K. has been India's major traditional buyer. Significantly, exports of mushrooms from India are directed only to two countries viz. France and Switzerland with France accounting for over 85 per cent of imports.

Major Markets : India's major markets in respect of individual processed fruit and vegetable products are tabulated below :*

Product	Major Markets
Mango jams	.. Saudi Arabia, Kuwait, U.S.A., Canada, Iraq, Singapore and Bahrein.
Other jams	.. Saudi Arabia, S. Ymn. P. Republic, Australia, Kuwait, U.S.S.R., U.S.A. and U.K.
Mango juice	.. U.S.S.R., Saudi Arabia, Ethiopia, Kuwait, Dubai, U.K. and Malaysia.
Other juices	.. East Germany, S. Ymn. P. Republic, Ethiopia, Saudi Arabia and Yugoslavia.
Fruit preserved by freezing without sugar	.. Dubai
Fruit preserved by freezing with sugar	.. U.K.
Mango slices in brine	.. U.K., A.R. of Egypt, Kuwait, Saudi Arabia, Iran, U.S.A. and France.

* Major markets have been identified taking into account the export performance during the last three years.

TABLE 8. *Regional Pattern of India's Exports of Processed Fruits and Vegetables*

Region	1973-74						1974-75						1975-76					
	Mango products			Selected 12 products incl. mango products			Mango products			Selected 12 products incl. mango products			Mango products			Selected 12 products incl. mango products		
	Qty	Val		Qty	Val		Qty	Val		Qty	Val		Qty	Val		Qty	Val	
Africa	219	734		250	893		346	1300		389	1547		460	2211		708	3417	
North America	508	3016		749	4888		544	4060		764	6245		448	3727		632	5915	
ESCAP	221	844		328	1588		224	1400		469	3698		307	1931		579	4357	
Other Asian and Oceanian countries and Antarctic and Arctic Regions	1617	5528		1938	6670		2013	9422		2670	12487		3185	15940		4827	24413	
East European countries	3258	8002		3429	8797		..	..		704	3879		2956	10482		4484	20058	
European Common Market Countries	2313	7300		2911	13033		3452	13033		4474	22167		2725	9672		3210	22461	
European Free Trade Area Countries	178	272		187	2403		27	271		32	1072		18	210		20	828	
Total of above	8314	26151		9792	38272		6603	29486		9502	51095		10099	44173		14560	81449	
Total—All Regions and All Products	8318	26160		10402	42012		6622	29496		10288	56479		10108	44224		15420	91484	

Note—(i) Data have been compiled for 12 selected products and 7 selected regions of the world in view of the fact that they accounted for 90 to 95 per cent of India's exports.

(ii) The 12 selected products are mango, jams and other jams, mango juice and other juices, mango slices in brine, other fruits in temporary preservative, fruits, etc., preserved in syrup, mango chutney/pickles with and without sugar, other pickles, mushrooms and other dehydrated vegetables excluding garlic.

Source : Compiled from the Department of Commercial Intelligence and Statistics, Calcutta.

Product	Major Markets
Other fruits in temporary preservative	.. East Germany, Kuwait, Dubai, S. Arabia, Ethiopia and Bahrein.
Fruit preserved in syrup	.. East Germany, S. Ymn. P. Republic, U.K. and Kuwait.
Other fruit preserved or prepared	.. Bulgaria, Hungary, Dubai, Nepal, Muscat and Poland.
Mango chutney, pickles without sugar	.. Iraq, U.K., Kuwait, U.S.A. and Australia.
Other pickles	.. U.K., Australia, U.S.A., Canada, Dubai, Kuwait and Bahrein.
Vegetables preserved or prepared in air-tight containers	.. U.K., Dubai and U.S.A.
Mushrooms	.. France, Switzerland and U.S.A.
Other dehydrated vegetables excluding garlic	.. U.S.S.R., U.K., Japan, Muscat, Australia and West Germany.
Asparagus	.. Malaysia and Singapore.

Quantity and value of exports in terms of products and important markets are shown in Annexure 10.

Unit Value Realisation : Unit value realisations registered a substantial increase during the period 1967-68 to 1975-76 as evidenced from Table 9.

TABLE 9. *Unit Value Realisations*

		Rs. per tonne		
Product		1967-68	1975-76	Percentage increase
Mango chutney/pickles without sugar	..	2,320	6,422	More than doubled
Other juices	..	1,781	4,697	More than doubled
Mushrooms	..	1,03,056	2,61,268	More than doubled
Mango slices in brine	..	1,671	3,302	97.6
Vegetables preserved or prepared in air-tight containers		2,514	5,044	84.9
Other pickles	..	4,055	7,374	81.9
Other dehydrated vegetables	..	6,500	11,238	72.9
Mango juice	..	2,377	3,976	67.3
Mango chutney/pickles with sugar	..	3,115	5,144	65.1
Other fruits in temporary preservative	..	2,680	4,422	65.0
Fruits, etc. preserved in syrup	..	3,671	5,429	47.9
Fruits in air-tight containers	..	3,656*	5,091	39.2
Other jams	..	5,400	5,457	1.0
All products	..	2,907	5,933	More than doubled

* Based on 1968-69 figures

Source : Compiled from Statistics published by Department of Commercial Intelligence and Statistics, Calcutta.

Mango Juice : U.S.S.R. which is the bulk buyer of mango juice accounting for about 60 per cent of India's exports pays substantially lower prices to the extent of Rs. 1,000 per tonne as seen from below :

Unit Value Realisation Per Tonne

IN RUPEES

	1973-74	1974-75	1975-76
Kuwait ..	3,563	3,803	4,183
U.S.S.R. ..	2,277	..	3,523
Saudi Arabia	3,348	4,509	4,677
Ethiopia ..	3,164	3,699	4,433
All countries	2,801	4,435	3,976

Higher unit value realisation for mango juice during 1974-75 was on account of the total absence of purchases by U.S.S.R.

Mango Jams : Share of Saudi Arabia is on the increase in the purchase of mango jams from 20 per cent in 1973-74 to 55 per cent in 1975-76. The unit value realisation, however, is lower as compared to other countries.

Unit Value Realisation Per Tonne

IN RUPEES

	1973-74	1974-75	1975-76
Saudi Arabia	4,216	4,833	4,786
Kuwait ..	6,000	6,593	6,075
U.S.A. ..	6,000	6,527	6,208
All countries	4,188	5,469	5,339

Mango Slices in Brine : U.K. accounts for over 70 per cent of India's export of mango slices in brine. Unit value realisation, however, varied very widely.

Unit Value Realisation Per Tonne

IN RUPEES

	1973-74	1974-75	1975-76
United Kingdom	2,012	3,228	2,716
Kuwait ..	4,500	5,594	6,256
U.S.A. ...	2,561	4,237	9,269
All countries	2,253	3,365	3,302

Mango Chutney/Pickles (With Sugar) : U.K. is the major buyer accounting for 45 to 50 per cent of India's exports. Here too, the prices paid by U.K. are lower than other countries.

Unit Value Realisation Per Tonne

IN RUPEES

	1973-74	1974-75	1975-76
United Kingdom	2,908	3,300	3,460
U.S.A.	6,903	7,667	8,577
West Germany	3,784	4,731	5,796
All countries	4,101	4,810	5,144

Mushrooms : Unit value realisation for mushrooms recorded an increase along with the growth in export. Percentage share of France registered an increase to reach 93 per cent level in 1975-76.

Unit Value Realisation Per Tonne

IN RUPEES

	1973-74	1974-75	1975-76
France ..	237,923	256,000	261,526
Switzerland ..	209,250	264,333	308,000

Dehydrated Vegetables Excluding Garlic : U.S.S.R. and U.K. are the important buyers with U.S.S.R. constituting 83 per cent of the total exports during 1975-76.

Unit Value Realisation Per Tonne

IN RUPEES

	1974-75	1975-76
U.S.S.R. ..	12,416	11,630
U.K. ..	9,049	9,156

Unit value realisation in respect of all the 19 items for nine years from 1967-68 to 1975-76 are given in Annexure 11.

Complexities of Domestic Demand

Domestic demand for processed fruits and vegetables comprises requirements of (a) Army Purchase Organisation and Canteen Stores Department ; (b) Hotels and Restaurants ; and (c) Household consumers. Demand data with regard to different segments of the domestic market are not available. However, based on discussions with various organisations like Army Purchase Organisation, Canteen Stores Department, Department of Tourism of the Government of India, some Five-Star Hotels and the manufacturing units catering to the bulk buying organisations, domestic demand of the institutional buyers and household consumers during 1976 has been segregated as under :

TABLE 10. *Sector-wise Domestic Demand for Processed Fruits and Vegetables During 1976*

(Qty : '000 tonnes)

Total Production	..	55
Exports	..	15
Domestic Consumption		40
of which		
(a) Army Purchase Organisation and Canteen Stores Department		8-10
(b) Hotels and Restaurants		7-10
(c) Household Consumers		20-25

Of the domestic consumption of 40 thousand tonnes during 1976, institutions making bulk purchases represented 15 to 20 thousand tonnes. The pattern of institutional demand is discussed in the following paragraphs :

Demand of Army Purchase Organisation and Canteen Stores Department

The Army Purchase Organisations' (APO) requirements, mainly comprising canned vegetables and to a limited extent fruit products, are normally procured from a limited number of approved manufacturers located all over the country. The requirements are mainly to provide rations to the Defence personnel posted at difficult terrains in the border areas normally not accessible or inadequately linked with the rest of the country. The supplies are to be air-dropped and in order to meet the nutritional requirements of our forces in these difficult areas, APO purchases around 5 to 8 thousand tonnes of canned fruits and vegetables annually. Besides APO, the Canteen Stores Department purchases various processed fruits and vegetables to meet the requirements of Defence personnel in family stations. These purchases made by Quarter Master General at Bombay are estimated to vary between 3-5 thousand tonnes per annum. So the total demand of the Defence sector for these products can be reckoned around 8-10 thousand tonnes per annum.

Hotels and Restaurants

With the growth of tourism in the country, hoteliering industry has made rapid strides during the last decade. Presently, there are sixteen thousand rooms in the hotels approved by the Department of Tourism, Government of India. These hotels besides meeting the requirements of the tourists, both foreign and Indian, maintain big restaurant

sections which apart from handling normal trade cater to various functions organised in these hotels. Based on discussions with the authorities of two leading five-star hotels, the consumption in a typical five-star hotel has been estimated to range between 50 to 60 thousand kg per annum. In the absence of any data and information on the consumption of these products by all the hotels in the country, the consumption has been estimated at 2 thousand tonnes by taking into account average consumption worked out earlier, bed capacities available in the country and the restaurant trade. Accounting for the requirements of almost equal number of small establishments (restaurants, etc.) catering to the requirements of the floating population, the total demand of the hoteliering industry could be reckoned at 5 thousand tonnes per annum. The way-side restaurants in the cosmopolitan cities also use these products in bulk quantities. Based on interviews with some knowledgeable persons in restaurants industry, it has been estimated that total requirements of processed fruits and vegetables of restaurants in the country would be around 2-3 thousand tonnes per annum. So the total requirement of hotel and restaurants in the country perhaps varies between 7-10 thousand tonnes per annum. Composition of the products consumed by hotel industry can be assessed from the following table prepared on the basis of information provided :

TABLE 11. *Product Composition of Purchases of Two Five-Star Hotels During a Calendar Year*

Products	Qty : Kg	
	A	B
Jams, jellies and marmalades	17,063	3,839
Fruits in syrup	7,183	8,993

Fruit juices	..	27,430	35,569
Squashes	..	979	..
Canned vegetables	..	10,857	3,051
Dehydrated vegetables.	..		1,404
Total	..	63,512	52,856

Source : Field Survey

Demand of Household Consumers

Various factors having a bearing on the demand for processed fruits and vegetables include—(i) characteristics of the population, (ii) dietary habits, (iii) availability of fresh fruits and vegetables, (iv) availability of time with the housewives to process fresh fruits and vegetables at home, (v) income levels and disposable income, (vi) growth of urban population, and (vii) prices of these products. The influence of these factors on the demand for processed fruits and vegetables is discussed in the following paragraphs :

Characteristics of Indian Population : According to mid-1975 estimates, population of India during 1975 was 59.79 crores with 80 per cent population living in rural areas. In view of predominantly rural character of the Indian population generally fresh fruits and vegetables are consumed. Most of the fresh fruits and vegetables are available throughout the year because of diverse agro-climatic conditions obtaining in the country. The Indian population by tradition prefers fresh fruits and vegetables to the canned foods because it is felt that former are more nutritious than the latter. Further, the rural population consumes only traditional types of food and processed fruits and vegetables do not appear in their menu. In view of these characteristics of the bulk of the Indian population, demand for processed fruits and vegetables is generally limited to urban population which is less than 20 per cent.

Dietary Habits : Dietary habits of the people in urban areas undergo changes because of environmental factors such as paucity of time, lack of storage facilities for fresh fruits and vegetables at home and the ready availability of convenience foods. In view of these factors, people in urban areas particularly those having greater disposable incomes take to consumption of convenience foods.

Availability of Time: The pattern of our social structure reveals that women stay at home, whereas men-folk are on the work. But with more and more women taking up jobs, especially in some cosmopolitan centres like Bombay, Calcutta, Madras, Delhi and Bangalore, the demand for convenience foods is likely to get a stimulus. This is mainly due to the paucity of time available with them for cooking normal foods during the week days.

Income Levels and Disposable Income: With the increase in the income of a family, the standard of living improves with the family tending to patronise convenience foods. As processed fruit like jams, marmalades, jellies, juices, nectars and squashes are normally consumed by the affluent sector of the population, an analysis of the per capita family income of income-tax assesseees for the last 15 years has been attempted ; this shows that the income of this sector has grown

by about 68 per cent. This is an important factor in the growth of demand for these products. During 1974, however, with a view to checking the expansion of demand for various consumer items, the Government of India introduced certain measures for curtailing the disposable income in the hands of the affluent sectors of the population.*

The enforcement of these regulatory measures for containing the disposable incomes along with increase in prices during the last two years were largely responsible for the shrinkage in demand and consequently recession in this industry.

Growth of Urban Population: As processed fruits and vegetables are consumed mostly in the urban areas the study of trend of urbanisation in India assumes significance. Over the last quarter century there has been a steady shift towards urbanisation with urban population growing from 6.27 crores in 1951 to 10.9 crores in 1971 showing a compound growth rate of almost 3 per cent per annum. Urban population during 1975 can be estimated around 12.8 crores on the basis of earlier growth rate. Moreover, the establishment of steel plants and other public sector units in the country has resulted in the creation of new industrial town ships where there is a large concentration of working population both in the factory and office. This fact

* —Additional Emoluments (Compulsory Deposit) Act, 1974, provided for compulsory deposit of whole of additional wages and salaries for one year and a half of additional dearness allowance for two years. This covered nearly 1.8 crore employees in the government, public and private industrial sector.

— The Companies (Temporary Restriction on Dividends) Act, 1974 provided for limiting the after-tax profits distributed by companies to 33½ per cent of such profits, or to 12 per cent of the face value of the equity shares of the company and the dividend payable on its preference shares, whichever is less. Following the curb on dividend distribution, it was also found necessary to impose certain restrictions on the frequency of issues of bonus shares. Accordingly, the time lag between two successive announcements of bonus shares by a company was increased from 18 months to 40 months.

— The Compulsory Deposit Scheme (Income-Tax Payers) Act, 1974 covered all income-tax payers whose aggregate net annual income exceeded Rs. 15,000. The rate of compulsory deposit prescribed was 4 per cent of the aggregate net annual income up to Rs. 25,000 ; Rs. 1,000 plus 6 per cent of the excess over Rs. 25,000 in the slab of Rs. 25,001—Rs. 70,000 ; and Rs. 3,700 plus 8 per cent of the excess over Rs. 70,000 in cases where income exceeds Rs. 70,000.

coupled with the growth of general urbanisation in the country is likely to result in considerable growth in the consumption of these items.

Prices: Demand for any product at a particular point of time is basically governed by its price. The prices for the products of this industry have been rising rapidly (a three-fold rise during the last 15 years) owing to price hike in the raw materials and the imposition of various taxes, as evidenced from Table 12. The escalation in prices has adversely affected the demand for these products. This has been more so in the last two-three years when the Government of India resorted to containing the disposable income available with the affluent sector. So the stabilisation of prices at reasonable levels is expected to play an important role in the re-energisation of the closed units by enlarging demand for these products.

The influence of above mentioned factors on the demand for these products are divergent. With a view to projecting the future demand for these products in the domestic market, growth model with only three factors, i.e. (i) the growth of urban population, (ii) growth of

income of tax assesseees, and (iii) the price trends has been attempted.*

Based on the production data available with Subsidiary Food and Nutrition Division of the Ministry of Agriculture and Irrigation, production in future years has been forecasted with the help of linear regression analysis. Table 13 indicates the trends of production, exports and apparent domestic consumption of fruit and vegetable products in India during the last 15 years.

Production Trends

Table 13 reveals that the production of processed fruits and vegetables (both for exports as well as for domestic market) evinced an uninterrupted linear growth during 1961-67 from 28.57 thousand tonnes in 1961 to 45.54 thousand tonnes in 1967. Linear regression equation for this period was $Y = 38.16 + 2.8x$.

In August 1967, Government of India introduced partial decontrol of sugar. The fruit and vegetable preservation industry, which was getting sugar at control rates earlier, had to buy sugar, a vital raw material, at high prices in the open market. This resulted in the escalation of cost of production and

* Though urbanisation is a factor for the growth of this industry there is a correlation between urbanisation and incomes of the affluent sector. So taking into consideration only per capita family income of income-tax assesseees and the average wholesale prices of processed fruits and vegetables, regression equation has been attempted to see the correlation of these two independent variables with the apparent domestic consumption in the country. The equation worked out to :

$$Y = 56.007 + 0.9930x_1 - 0.0755 x_2$$

where Y represents the apparent domestic consumption ;

x_1 indicates per capita family income of income-tax assesseees in India ; and

x_2 indicates average wholesale prices of processed fruits and vegetables.

This equation indicates that there is almost perfect correlation between the per capita family income and the apparent domestic consumption. With every point increase in per capita family income the apparent domestic consumption is expected to increase by 0.993 whereas the average wholesale prices are having negative correlation indicating that with one point increase in the prices the apparent domestic consumption is going to decrease by 7.5 per cent. Over the last 15 years the per capita income has increased by about 56 per cent while the prices have increased by 257 per cent. The increase of 257 per cent in prices had a dampening effect on apparent domestic consumption by about 18 points. Had there been no increase in the prices the apparent domestic consumption would have been 18 points more as compared to what it has been during 1975. During the last two years because of the regulatory measures taken by the Government of India to contain the disposable income with the affluent sector the increase in prices is likely to adversely affect the apparent domestic consumption and thereby the growth of the industry.

TABLE 12. *Ex-Factory prices of a most Competitive Unit during the last 15 years*

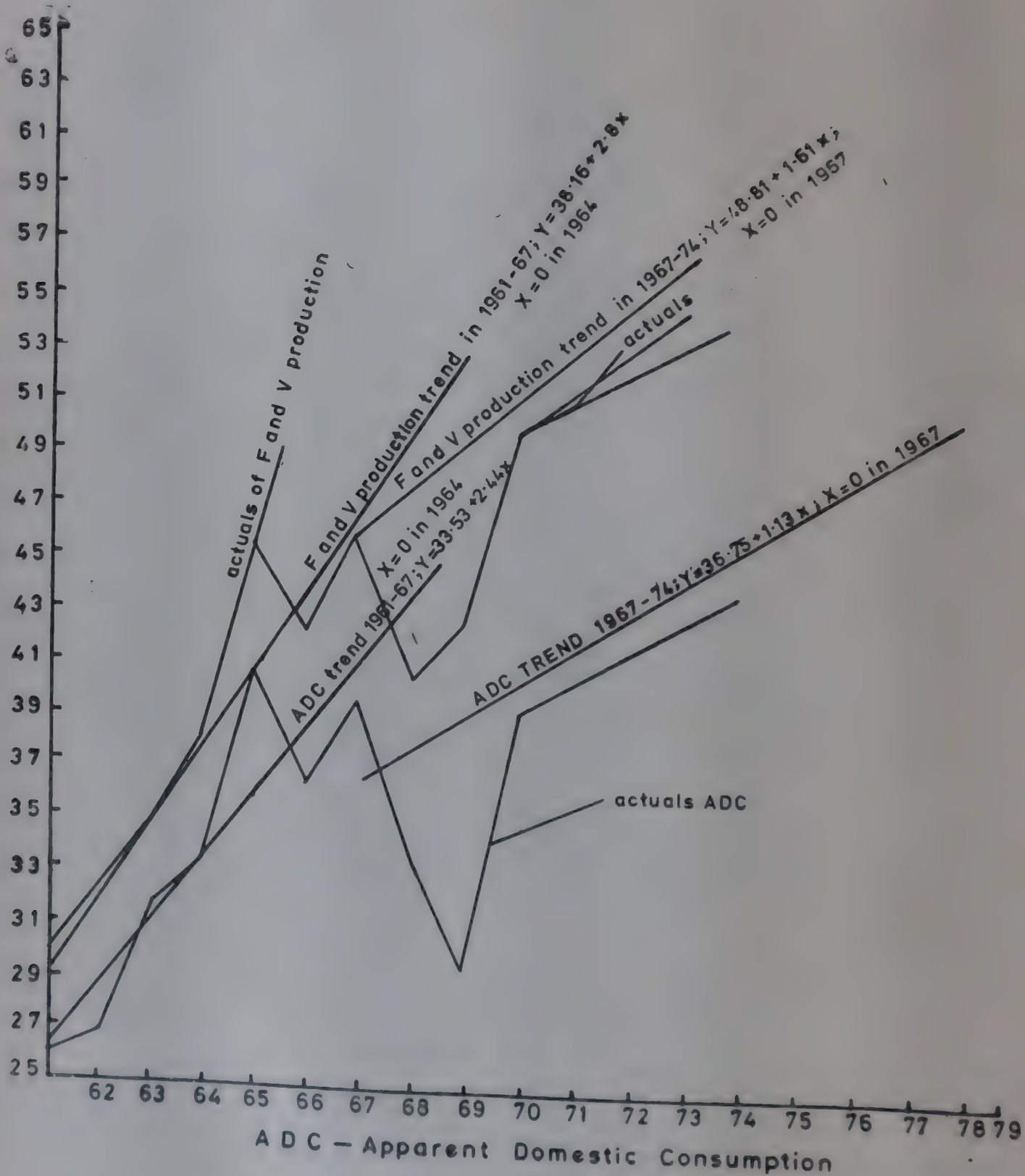
		Rs. Per Standard Case					
		Orange squash 12 × 680 ml	Mixed fruit jam 48 × 450 g	Pineapple slices 24 × 850 g	Pineapple juice 24 × 850 ml	Tomato k/ sauce 24 × 370 g	Green peas 48 × 450 g
October 1960	..	20.50	56.00	37.00	32.00	24.50	..
April 1963	..	21.35	60.00	40.00	34.00	25.50	..
November 1965	..	23.35	62.00	44.00	37.00	25.50	48.00
July 1966	..	25.35	69.00	50.00	42.00	27.50	54.00
August 1967	..	32.35	93.00	64.50	47.50	31.50	54.00
December 1967	..	34.00	110.00	68.00	47.50	37.00	54.00
August 1968	..	32.00	100.00	63.00	46.00	38.00	59.00
March 1969	..	35.20	110.00	69.30	50.60	41.80	59.00
June 1970	..	35.20	115.50	72.30	58.80	41.80	64.00
April 1971	..	35.33	115.55	76.20	65.20	41.75	64.00
October 1972	..	44.68	137.87	98.00	84.30	49.66	77.00
November 1973	..	51.70	158.40	130.00	98.20	49.50	88.00
April 1974	..	62.70	191.40	161.40	121.90	60.50	108.90
October 1976	..	62.70	205.70	172.40	114.75	64.90	110.00

TABLE 13. *Production, Export and Apparent Domestic Consumption of Fruit and Vegetable Products in India*

		Qty : Tonnes		
Year		All India pro- duction of F & V products	Exports of F & V products from India	Apparent Domes- tic Consumption
1961	..	28,569	2,463	26,107
1962	..	32,657	5,918	26,739
1963	..	34,856	3,058	31,798
1964	..	38,311	4,715	33,596
1965	..	45,143	4,500	40,643
1966	..	42,002	5,527	36,475
1967	..	45,542	6,109	39,433
1968	..	40,158	6,741	33,417
1969	..	42,404	12,830	29,574
1970	..	49,116	10,041	39,075
1974	..	53,528	14,307	43,411
1975	..	N.A.	14,638	N.A.

Source : (i) Directorate of Marketing and Inspection, Ministry of Agriculture, Nagpur (for data up to 1970)

(ii) Subsidiary Food and Nutrition Division of Ministry of Agriculture (data for 1974 and 1975).



hence the prices, bringing them almost beyond the means of consumers. The result was that, in 1968, the production of processed fruits and vegetables suffered a set-back bringing it down to 40.16 thousand tonnes as against 45.50 thousand tonnes in 1967.

After 1967, the industry's production showed erratic trend with output of the industry fluctuating with the requirements of exports and Defence sector. The linear trend fitted for the period 1967-74 gives the regression equation as $Y = 48.81 + 1.61x$; this equation indicated significantly lower growth rate as compared to the period 1961-67. The lower growth during the later period can be attributed to various factors including the high cost of sugar due to the dual price policy of the Government of India and introduction of excise duty and enhancement of sales tax by the Central and State Governments during the period. During 1975, the demand registered a big slump owing to high prices of the products and decline in the purchasing power of middle class population due to inflationary pressures, leading to large-scale retrenchments and lay-offs in various units.

Trends of Apparent Domestic Consumption

If the exports are deducted from the total production the resultant figures given in column 4 of Table 13 would indicate the apparent domestic consumption of the survey products in India during 1961-74. The apparent domestic consumption during 1961-67 had a spectacular growth and the linear trend fitted for the period indicated the equation $Y = 33.53 + 2.44x$. After 1967, the inflationary pressures coupled with price increases resulted in big oscillations in the apparent domestic consumption for the products of this industry. The linear equation fitted for the period 1967-74 is $Y = 36.75 + 1.13x$.

So there was a big reduction in the rate of growth of apparent domestic consumption from 1967 onwards.

Demand Projections

The future production pattern of this industry depends on factors like export demand and the revival of domestic demand. The spectacular growth witnessed by this industry on account of liberal export promotion policies has been taken into consideration while making export projections.

Export Projections : Vicissitudes in quantitative exports during the last decade have been mainly due to the erratic exports to U.S.S.R. With a view to projecting India's exports of processed fruits and vegetables, the effect of erratic exports to U.S.S.R. has been eliminated in Table 14.

Total exports excluding U.S.S.R. have increased from 3,682 tonnes in 1967-68 to 12,091 tonnes in 1975-76 showing a compound growth rate of 16 per cent per annum. The growth has been more spectacular during the last three years when the exports increased from 7,072 tonnes in 1972-73 to 12,091 tonnes in 1975-76, with a growth rate of 19.5 per cent per annum. This trend had been mainly because of the emergence of big market in OPEC countries of West Asia. The report of the sales-cum-study team sponsored by the Processed Foods Export Promotion Council indicates that the share of India in these markets is so far insignificant. In view of the large potentialities of this market, India's exports during the next five years can be projected at a compound growth rate of 19.5 per cent per annum to reach 29.46 thousand tonnes. Exports to U.S.S.R. could not be projected because of their erratic behaviour during the last four years. However, on the most conservative estimates of 3,000 tonnes per

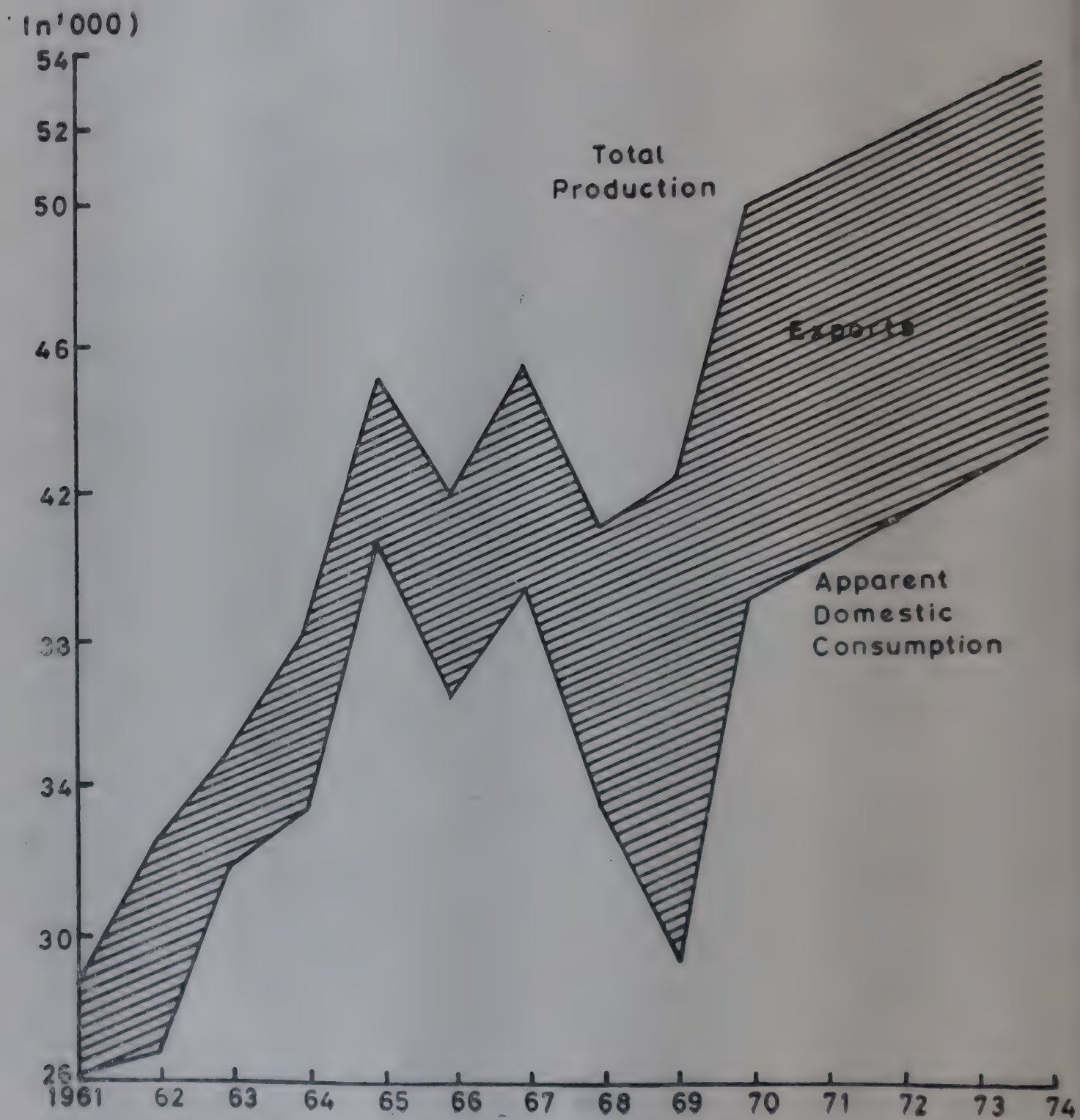


TABLE 14. *India's Exports of Processed Fruits and Vegetables*

Qty : Tonnes ; Val. : Rs. '000

Year		U.S.S.R.		Total Exports		Total Exports excl U.S. S.R.	
		Qty	Val.	Qty	Val.	Qty	Val.
1967-68	..	2,524	5,146	6,206	18,040	3,682	12,894
1968-69	..	2,171	5,035	6,723	22,260	4,552	17,225
1969-70	..	7,493	13,739	13,536	34,526	6,043	20,787
1970-71	..	5,564	12,470	11,495	33,438	5,931	20,968
1971-72	..	5,085	9,263	11,219	32,930	6,134	23,667
1972-73	..	8,504	16,480	15,576	45,078	7,072	28,598
1973-74	..	2,778	6,326	10,402	42,012	7,624	35,686
1974-75	..	123	1,494	10,288	56,479	10,165	54,985
1975-76	..	3,329	14,721	15,420	91,484	12,091	76,763

annum to U.S.S.R., exports during 1980-81 can be put at 33,000 tonnes.

Domestic Demand Projections : The domestic demand for Defence sector is likely to be of the order of 8-10 thousand tonnes only. Demand from hotels and restaurants is likely to grow, with the growth of tourism and consequently the development of hoteliering industry, to a level of 9 to 12 thousand tonnes by 1980-81. So the total institutional demand by 1980-81 is likely to be between 14 to 20 thousand tonnes.

The household demand depends largely on—(i) the stabilisation of prices in general as well as for these products specifically, and (ii) the per capita growth of family incomes of relatively affluent sections in the country. With the stabilisation of prices during the last one and a half years the demand for these products has shown some signs of gradual recovery. Discussions with the leading units in the industry revealed that if the prices are allowed to stabilise at some reasonable levels with reduction in excise duty, demand for the products of this industry

may expand considerably during the coming years. Increase in demand will lead to increase in production, i.e. better capacity utilisation which will result in reduced overheads per unit of production and hence better financial returns to the industry for attracting more investment for expansion.

The demand of the household consumers can be gauged normally, through a properly conceived consumer survey. As no survey of this type has ever been undertaken in the country for products of horticultural origin, the study had to depend on secondary sources like sales departments of the manufacturing units, wholesalers, departmental stores and speciality food stores in Bombay and Delhi handling these products. The reactions of the consumers in metropolis to these products as well as the acceptability of these products were gathered through discussions with the above mentioned sources. Based on their experience, business judgment and with the help of linear regression analysis of apparent domestic consumption, the study had

endeavoured to make projections for 1980-81. It is estimated that the household consumption for these products with prices stabilised at reasonable levels during 1980-81 may be between 43 to 48 thousand tonnes. In the event of no relief being given to the industry in terms of reduced

taxes and duties (thereby not lowering prices) the consumption of this sector may stagnate around 29 to 34 thousand tonnes as against current level of 20 to 25 thousand tonnes. Sector-wise demand projections for 1980-81 are given in Table 15.

TABLE 15. Demand Projection for Processed Fruits and Vegetables by 1980-81

		Thousand Tonnes		
		1975-76	At Low Growth	At High Growth
Exports	..	15	29	33
Defence	..	8-10	8-10	8-10
Hotels and Restaurants		7-10	9-12	9-12
Household consumers	..	20-25	29-34	43-48
Total	..	<u>55</u>	<u>80</u>	<u>98</u>

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CHAPTER IV

COST STRUCTURE ANALYSIS

With a view to analysing the cost structure, the products manufactured by fruit and vegetable processing industry have been categorised as—(i) products with high sugar content like jams, jellies and marmalades ; (ii) products with comparatively low sugar content, i.e., squashes, juices, pulps, nectars, tomato ketchup ; and (iii) products with little sugar content like canned, fruits and vegetables. Since these products are manufactured

and packed in various sizes by different manufacturers to cater to the requirements of hotels, restaurants and household consumers, the cost structure of representative items packed in popular sizes manufactured by leading units of the industry has been examined. The ex-factory cost of production during 1976 for popular brands of the select products are given below ;

TABLE 16. *Ex-Factory Cost of Production of Fruit and Vegetable Products during 1976*

Brand*	Rs PER CASE				
	Mixed fruit jam	Orange squash	Pineapple slices in syrup	Tomato ketchup	Canned peas
	(20×450 g)	(12×680 ml)	(24×850 g)	(12×770 g)	(24×800 g)
B1	100.08	58.85	..	68.87	100.14
B2	99.27	63.56	..	67.71	92.56
B3	89.89	57.97	..	53.27	..
B4	..	63.29	..	..	..
B5	..	..	140.16	..	..
B6	..	..	105.16	..	..

* Brands have been given code numbers in order to maintain confidentiality of the data.

The ex-factory cost of production of the representative products varied marginally from unit to unit. The ex-factory cost of production comprises three main elements viz.—(i) raw materials—prime raw materials (fruits and vegetables), subsidiary raw materials (sugar, preservative chemicals and colours) ; (ii) pack-

ing materials (cans and bottles, closures and outer packaging material) ; and (iii) conversion costs (direct labour cost, fuel and electricity charges, consumable stores, and water charges), other overheads including marketing costs, interest on working capital and repairs and maintenance.

Raw Materials

Raw materials constitute prime raw materials like fruits and vegetables and subsidiary raw materials like sugar and preservative chemicals and colours. Table 17 indicates ranges of variation of actual raw material cost as well as the percentage share of various material costs in the total cost of production.

The share of total raw material costs in the ex-factory cost of production has shown variations from product to product as well as from unit to unit between a product. The variations of cost between

the products can be attributed to different compositions of the elements of raw materials in the products whereas the variations between the units for a single product are due to the variations in the cost of various raw materials available to different units. The assignable causes for the variations in different raw material costs are discussed in the paragraphs that follow :

Prime Raw Materials:—In line with total raw material costs, the share of prime raw materials in the total cost of raw materials in various products have also tended to vary owing to :

TABLE 17. *Cost of Raw Materials in Various Products of Fruit and Vegetable Processing Industry*

(Value : Rs. PER CASE)

Product Type	Prime Raw Material	Sugar	Colours and Preservative Chemicals	Total
Orange squash ..	7.09 to 10.56 (12.23 to 17.94)	18.13 to 20.00 (28.95 to 32.37)	2.83 to 5.15 (4.47 to 6.76)	28.53 to 35.21 (48.49 to 55.40)
Mixed fruit jam ...	5.76 to 12.42 (5.80 to 12.31)	32.72 to 39.99 (32.44 to 40.28)	5.40 to 10.22 (3.74 to 7.26)	46.92 to 55.36 (52.20 to 54.88)
Pineapple slices in syrup	17.00 to 41.86 (29.45 to 44.81)	13.00 to 17.18 (9.79 to 15.37)	0.60 to 2.00 (10.72 to 1.31)	31.00 to 60.06 (29.45 to 44.81)
Tomato ketchup ..	11.20 to 14.40 (20.94 to 21.27)	7.64 to 11.32 (11.28 to 21.25)	1.21 to 2.00 (1.38 to 7.37)	23.25 to 26.63 (34.34 to 44.88)
Canned peas ..	21.50 to 30.34 (23.23 to 30.30)	1.41 to 2.25 (0.00 to 2.43)	0.71 to 3.93 (0.71 to 4.25)	29.90 to 32.46 (29.90 to 32.41)

Figures in brackets indicate percentage share to the total cost

(i) *Location of the Units:*—If a processing unit is located away from the fruit and vegetable growing areas, the cost of prime raw materials has been comparatively high due to—(a) transportation costs ; (b) spoilages in transit ; (c) octroi duty ; (d) forwarding and handling charges ; (e) commission agents' charges in 'Subziman-dies' ; (f) marketing fees in 'Subzi mandies' ; and (g) cold-storage charges.

(ii) *Method of Procurement:*—For units located in the fruit and vegetable growing areas, the cost of prime raw materials, though comparatively lower, varies from unit to unit owing to differing procurement methods. The units procuring prime raw materials through agreement with the growers by providing them with extension services, seeds and other inputs get the supplies at comparatively lower prices as com-

pared to the units buying directly from the market. Such arrangements help both the manufacturing units and the growers ; the growers are assured of a regular market for their produce at stipulated prices whereas the manufacturer is assured of regular supply of prime raw material of required standards at reasonable prices thereby facilitating long term sale commitments.

- (iii) *Quantum of Purchases*:—The quantity of prime raw material purchased by a unit at a point of time also affects the price and hence cost to the unit. In case of large-scale purchases the suppliers/growers are enabled to quote lower prices because gains are calculated per transaction rather than per unit. The units with low turnover are required to pay more as compared to units with larger turnover.

The cost of fruits and vegetables to the units located in cosmopolitan cities especially Bombay is about 25 per cent higher than to the units located in growing areas. This is because of the pressures of large consumer demand in these populous centres.

The variations in the cost of prime raw materials in representative products between the units contacted during the study are discussed below :

Orange Squash:—The cost of fruit material utilised in the manufacture of orange squash in the orange growing belt was Rs. 7.09 per case of 12 bottles of 680 ml compared to a price range of Rs 9.54 to Rs 10.56 for a similar pack in the case of units located away from the orange growing region. The variation of cost between these units results from the quantity of juice consumed for the manufacture of squash and the procurement arrangements followed.

The share of fruit material in the total cost of production of the units located in fruit growing belt was 12.33 per cent as against 17.94 per cent in case of units located in the cosmopolitan cities. The units located in growing regions therefore enjoy the advantage of lower prime material costs.

Mixed Fruit Jam:—In case of mixed fruit jam, the cost of fresh fruit varied from Rs. 5.76 to Rs 12.42 in a case of 24 jars of 450 g. This variation could perhaps be attributed to the varied composition of fruit used in the manufacture of jam. But the fact remains that the cost of fruit materials, ranging from Rs. 5.76 to Rs. 7.50 per case, was lower in case of units located in the growing areas ; the cost of fruit material was high at Rs 12.42 in respect of units located away from growing areas. In the total cost of production of mixed fruit jam, the share of fruit material varied from 5.8 per cent to 8.3 per cent in growing areas as compared to 12.3 per cent in Bombay.

Pineapple Slices in Syrup.—The share of prime raw material in case of pineapple slices in syrup varied from Rs. 17.00 to Rs. 41.86 per case of 24 cans of 850 g. Since most of the units are located in the growing areas, the variations in the case of fruit material is due to the accounting procedure. For manufacturing a case of 24×850 g of pineapple slices in syrup, 48 kilograms of pineapple fruit are required. Since the slices packed are 500 g per can, remaining fruit material is used for canning of tit-bits and pineapple juice. Some manufacturers do not take into account the earnings emanating from tit-bits and juices. The entire cost of fruit material is put to pineapple slices' account, thereby inflating the production cost of pineapple slices. Some of the units have erred on the other side by taking only the proportionate cost of slices by weight instead of total volume

of the fruit. The cost of raw material ranging from Rs. 27.0 to Rs. 32.0 per case therefore, as indicated by some units, appears to be acceptable.

Tomato Ketchup:—The cost of prime raw material, i.e., tomatoes, varied between Rs. 11.20 to Rs. 14.40 in a case of 12 bottles of 770 g. The variations in the cost of raw material have been mainly due to location of the units. The units located in growing belt are buying the raw material at very competitive rates whereas the units located in cosmopolitan cities have to buy materials at 25 to 30 per cent higher prices. Further, units in growing areas are enabled to procure tomatoes at most competitive prices through contracts with the growers and the National Seeds Corporation.

Subsidiary Raw Materials

Sugar:—Due to the partial decontrol of sugar in 1967 requiring the industry to procure sugar in the open market, sugar has come to be an important element of cost. During the last few years the prices of sugar ruled very high thereby making the cost of production for products with high sugar content prohibitive. The share of sugar cost in the total ex-factory cost of production has been indicated in the beginning of this Chapter. Variations in the share of sugar cost between producers witnessed therein result from varying quantities of sugar used in a product. In case of mixed fruit jam the share of sugar cost varied between 32.44 to 40.28 per cent in the total ex-factory cost of production whereas in respect of orange squash the share of sugar cost varied from 28.95 to 32.37 per cent in the ex-factory cost of production.

In case of products with lower sugar content like pineapple slices in syrup and tomato ketchup, the share of sugar cost varied from 9.79 per cent to 21.25

per cent in total cost. The variations in tomato ketchup were of the order of 10 per cent whereas in the case of pineapple slices in syrup the variations were of 5 per cent only.

Products like canned peas contain very little sugar. The share of sugar cost in the total ex-factory cost of production was 2.43 per cent and less. Some units do not add any sugar and in such cases sugar did not appear in the elements of cost.

Preservative Chemicals and Colours

Preservative chemicals and colours used in the manufacture of various products in this industry account for a very small share ranging from 0.71 per cent to 7.31 per cent with a maximum of 3 per cent variations in the total cost of production within a product. The variations in the cost of these materials in the total cost can be attributed to the quantities and qualities of chemicals used by different units.

Packing Materials

Packaging materials used by this industry comprise glass bottles, glass jars, cans, metal caps and closures, labels, wrapping paper, outer packing cartons and strapings. Since the industry caters to the requirements of exports, Defence, hotels and restaurants, airlines, hospitals and household consumers in the country, the packing requirements vary in terms of designs, quality and sizes. For maintaining individuality, different units get their containers fabricated according to their specifications with regard to designs and sizes. Various popular pack sizes adopted by this industry are given in Annexure 7.

Cost of packing materials vary only to a limited extent. Table 18 indicates the ranges of variations in the packing

TABLE 18. *Cost of Packing Materials in Various Products*

(Value : Rs. PER CASE)

Product type	Cost of cans/bottles and caps/closures	Labels and other packing materials	Total
Orange squash, 12 X 680 ml bottles	11.38 to 13.36 (18.57 to 21.11)	4.80 to 9.80 (7.77 to 15.48)	18.70 to 23.16 (29.42 to 36.59)
Mixed fruit Jam, 24 X 450g jars	20.81 to 24.82 (20.96 to 27.61)	5.27 to 7.44 (5.50 to 6.49)	28.25 to 30.09 (28.46 to 33.47)
Pineapple slices in syrup 24 X 850g cans	36.23 to 48.00 (25.85 to 45.61)	4.25 to 6.55 (4.04 to 4.68)	42.78 to 52.25 (30.52 to 49.64)
Tomato ketchup, 12 X 770g bottles	11.38 to 13.68 (21.36 to 24.30)	6.19 to 0.98 (11.62 to 12.40)	17.57 to 20.60 (32.98 to 36.70)
Tomato ketchup, 24 X 360g bottles	22.68 to 22.69 (32.95 to 33.50)	3.90 to 5.88 (8.53 to 16.30)	28.57 to 33.72 (41.48 to 49.80)
Green peas canned, 24 X 800 g cans	35.76 to 37.65 (37.60 to 38.63)	6.78 to 10.08 (7.33 to 10.07)	42.54 to 49.86 (45.96 to 47.66)

Figures in brackets indicate percentage share to the total cost

material cost as well as the percentage share of packing materials in the total ex-factory cost of production.

The share of packing material costs in the total cost of production varied from product to product. In case of bottled products such as squashes, the cost of packing materials varied from Rs. 18.70 to 23.16 per case of 12 x 680 ml (this variation was mainly due to use of fancy bottles by a manufacturer of squashes). In case of other bottled products like tomato ketchup and mixed fruit jams the variations in the share of packing costs in the total cost of production were marginal from 5 to 7 per cent. These variations have been attributed to various factors like location of units, size of operation and the quality of the packing material used by the units.

Packing material fabrication industry is mostly located in or around big cities. The units located in these areas get their packing material requirements at lower rates because they are not required to pay transportation charges, central sales

tax and octroi duty besides minimum breakage. For example, units like 'Kisan' get their glass bottles from M/s Alembic Glass Co., Bangalore, at the most competitive prices because of— (i) proximity of the two units ; (ii) no packing and forwarding cost ; (iii) no inventory accumulation ; and (iv) very low transportation costs. Units located away from big industrial centres are required to pay 5 to 10 per cent higher prices for the packing materials because of various Central, state and local taxes as well as transportation and allied charges.

In case of canned products such as pineapple slices in syrup and green peas in brine the packing costs varied from Rs. 42.54 to Rs. 52.25 per case of 24 X 800 g. The variations were more in case of pineapple slices in syrup as compared to green peas in brine. Further, the share of packing cost in pineapple slices in syrup showed wide variation from 30.52 per cent to 49.64 per cent. This was because of the fact that in one unit

the overall cost of production was very high due to factors like inflated cost of raw materials and very high overheads.

Conversion Costs

The conversion costs in the manufacture of various products of the industry include direct salaries and wages, power and fuel, repairs and maintenance, consumable stores, depreciation, interest on working capital and indirect salaries of the administrative establishment.

The conversion costs for a particular

product manufactured by a unit depend on factors like size of the unit (i.e. capacity installed and utilised), the range of products and the staffing pattern. Units with large capacities and small turnover have very high conversion costs, whereas the units showing better capacity utilisation have lower conversion costs. Further units with diversified areas of operation distribute their overheads to these products according to 'what the traffic can bear'. Following table indicates the conversion costs for some of the representative products of this industry :

TABLE 19, *Share of Conversion Costs in the Ex-Factory Cost of Representative Products During 1976*

(RS. PER CASE)

Product	Conversion costs (including overheads)
Orange squash, 12 X 680 ml ..	5.78 to 9.65 (9.82 to 16.58)
Mixed fruit jam, 24 X 450 g ..	13.78 to 18.06 (15.33 to 18.19)
Pineapple slices in syrup, 24 X 850 g ..	22.00 to 37.32 (20.90 to 26.68)
Tomato ketchup, 12 X 770 g ..	11.79 to 12.29 (21.83 to 22.13)
Tomato ketchup, 24 X 340 g ..	10.74 to 13.67 (15.86 to 19.95)
Green peas, 24 X 800 g ..	19.95 to 22.34 (19.92 to 24.14)

(Figures in brackets indicate percentage share of conversion costs in the total costs).

The variations in the conversion costs have been attributed to the scale of operation and the capacity utilisation of the survey units. Units with large turnover could spread their overheads resulting in low per unit conversion cost. Moreover, in the case of units with large-scale production the conversion costs are lower owing to fuller utilisation of plant and machinery and permanent employment of man power resources. Further with optimal level of inventories and better management of the working capital with more cycles of production, units with large-scale production have been able to peg down the conversion costs to a

very reasonable level. The lower conversion costs of the units located in cosmopolitan cities have in fact neutralized the advantage of cheaper fruit and vegetable materials available to the units located in the growing regions.

Conclusions

- The ex-factory cost of production of representative products manufactured by large-scale units located in the cities have been lower as compared to the units located in the growing areas.

- Though share of raw material costs varied widely and was favourable to the units located in the fruit and vegetable growing regions, other elements of cost weighed heavily in the determination of total costs.
- Packing costs worked out to be higher when products were packed in cans as compared to products packed in glass bottles. Further the packing costs increased with reduction in the size of packs.
- Sugar and packing material costs together have been accounting for over 60 per cent of the total ex-factory cost of production in sugar based products.

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CHAPTER V

MARKETING COSTS AND PRICE SPREADS

The study of marketing costs presupposes a detailed understanding of the marketing channels prevalent in any industry. As discussed in Chapter II, this industry, besides 30 to 35 large-scale established units, comprises a large number of cottage and small-scale units who market their products mostly in the vicinity of their location directly through retail outlets. The margins charged by retailers in respect of these products are normally higher than those for established brands manufactured by large-scale units. Though cottage scale units are not required to pay central excise, central sales tax, octroi duty and other miscellaneous charges, their production costs remain at the level of large-scale units due to the absence of the economies of scale of operation. Since these units account for less than 25 per cent of the total production in the country, the study of marketing channels of organised sector units is more relevant. Further, the cottage and small-scale sector units determine prices in line with the prices of the established brands. Since the market prices for various products are fixed by the large-scale units, the study of the marketing channels of these units assume greater significance. Marketing channels used for the products of large-scale units are indicated in the chart given on page 55.

It would be seen from the chart that there are various bulk buying organisations for the product of this industry making direct purchases from the manufacturers. Procurement systems of some

of bulk purchase organisations are discussed in the following paragraphs.

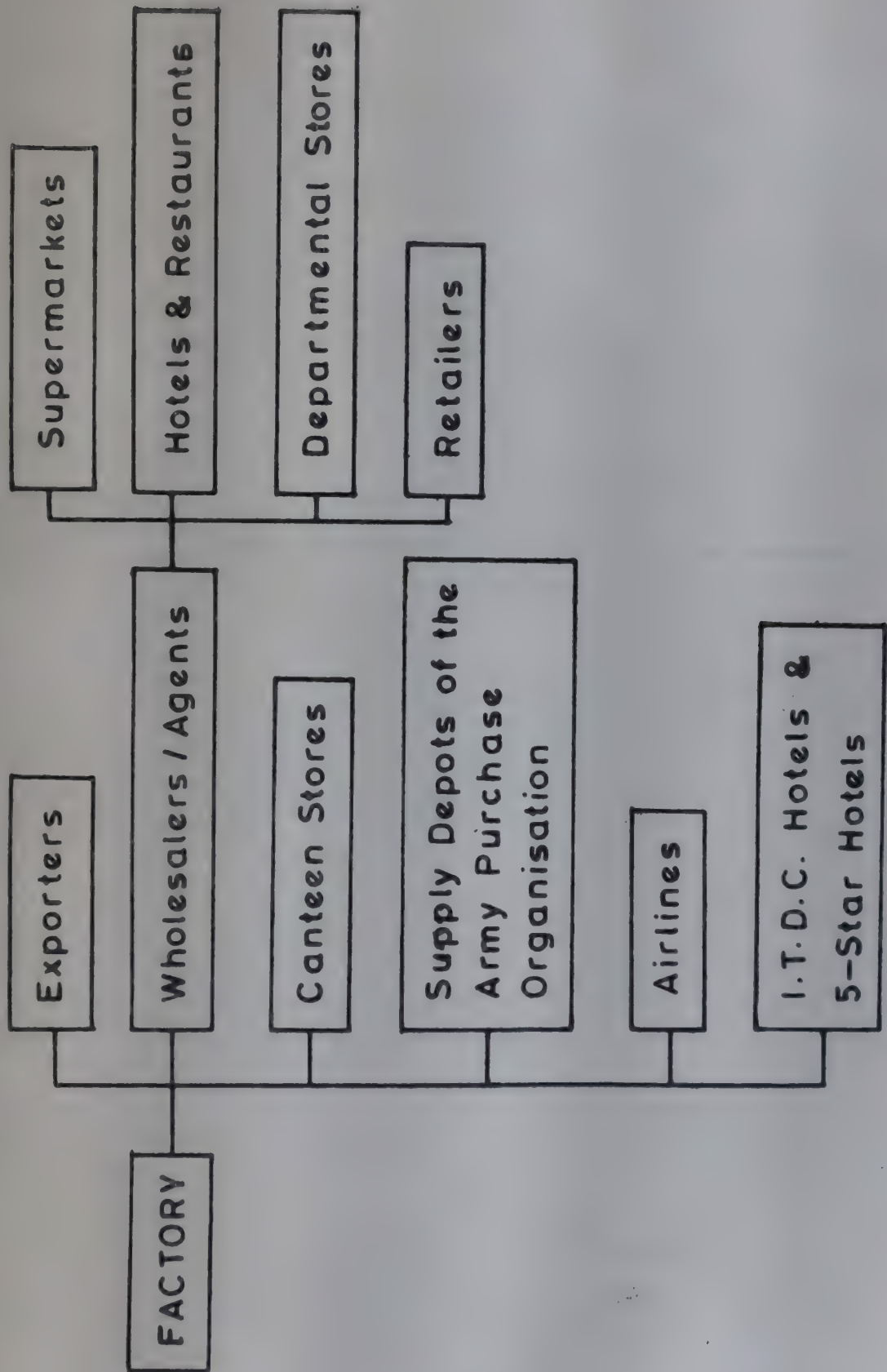
Defence and Canteen Stores Purchases

Army Purchase Organisation under the Department of Food, Ministry of Agriculture and Irrigation, Government of India, New Delhi, makes purchases of processed fruit and vegetable products from the approved manufacturers through tenders. Major products bought by this organisation include canned vegetables and fruits in syrup. Most of the suppliers are large-scale manufacturers. Different items are purchased from different manufacturers because of the operational advantages available to manufacturers as well as to the Army Purchase Organisation. For Canteen Stores Department, the buying operations are made from Bombay by the Quarter Master General. For both these organisations, the supplies are taken from the approved factories directly. The quality specification and other terms and conditions for supplies to Army Purchase Organisation in respect of canned fruits and vegetables are detailed in Annexure 13.

Hotels and Restaurants' Supplies

Hotels and restaurants require specific types of products in definite pack sizes. Normally the hotel industry requires larger/economy packs and the major products in demand comprise jams, juices, marmalades, tomato ketchup, pineapple slices in syrup and various canned vegetables.

Marketing Channels of a Large Scale Unit



The purchases by five-star hotels and I.T.D.C. are again directly made from the manufacturers. From the industry's view point there are again only a limited number of manufacturers processing products for the hotel industry. In fact many brands which are not otherwise known in the consumer market are being used by the Hotel and Restaurant industry.

Marketing costs and price spreads are most relevant to the household consumer market. Though bulk consumers and exports are important from various angles, the importance of household consumer

emanates from the fact that of the total production of about 55 thousand tonnes of fruit and vegetable products almost 50 per cent is meant for the household consumers. Cosmopolitan cities are the major centres of consumption. Since it has been difficult to study the price spreads for these products all over the country, the study has been confined to Bombay City which is a big consumption centre for the popular brands of representative products. The following table indicates the price spreads for different branded products in Bombay during September 1976.

TABLE 20. *Price Spread For Various Products in Bombay during September 1976*

(RS. FER CASE)

		Ex-factory cost	Ex-factory price	Retail Consumer Price
Orange Squash (12 X 680 ml)				
Kissan	..	57.97	57.00	96.00
Dipy's	..	58.85	60.00	91.20
Noga	..	68.81	59.00	90.00
Mixed Fruit Jam (24 X 450 g)				
Kissan	..	89.89	93.50	154.80
Dipy's	..	100.87	106.00	153.60
Noga	..	101.08	102.00	156.00
Tomato Ketchup (24 X 360 g)				
Dipy's	..	68.87	77.60	111.60
Pineapple Slices in Syrup (24 X 850 g)				
Kissan	..	140.16	160.00	252.00
Canned Peas (24 X 850 g)				
Dipy's	..	100.14	116.69	158.40

Ex-Factory Costs and Ex-Factory Prices

It will be observed that ex-factory prices of orange squash especially that of Noga and Kissan are lower than their ex-factory costs. As prices of squash are determined by leader units like Dipy's and Kissan, other units fix their prices in line with the leader units in order to remain in the market. Ex-factory price of Rs 57.00 f.o.r. (when transportation and other costs are included) Bangalore for Kissan squash is higher than Rs 60.00 of Dipy's in Bombay. In such a case Noga had to fix the price of its squash lower than that of Kissan and Dipy's at Rs 59.00 for a case of 12×680 ml. Similarly, in case of mixed fruit jam the ex-factory prices of Noga are lower than those of Dipy's by about 4 per cent.

Further it will be seen that though industry's margins (difference between the ex-factory prices and costs) have been nominal, the retail consumer prices in Bombay for these products were higher by 43.8 to 68.4 per cent when compared with the ex-factory prices (excluding central excise and state sales tax). The difference between the retail prices and the ex-factory prices does not represent merely marketing costs, they include a number of central, state and local taxes inflating the ultimate consumer prices. For a clearer appreciation of the marketing costs included in these wide margins, the built up of the consumer prices by various elements is indicated in Table 21.

It will be seen that the prices to the consumer are between 43.8 to 68.4 per cent higher than the ex-factory prices with price spread being wider in case of products coming from other states; for example in case of 'Kissan' products marketed in Bombay, the range of price spread varied from 57.5 to 68.4 per cent over the ex-factory prices whereas local products like 'Dipy's' and 'Noga' had a price spread varying between 43.8 to 52.9 per cent over the ex-factory prices. The prices to the consumer remain almost the same, but the manufacturers outside the cosmopolitan cities reduce their ex-factory prices to be competitive in these urban markets.

Margins of the wholesalers/agents varied from product to product and brand to brand. In case of fast moving products/brands the margins are lower as compared to low consumption items/less popular brands. The margins of the wholesalers/agents varied from 4.6 per cent to 9.75 per cent whereas those of the retailers are between 14.0 to 21.37 per cent, total trade margins worked out between 18.6 per cent and 28.07 per cent. Since the consumer prices have been between 44 and 69 per cent higher than the ex-factory prices, the share of taxes and duties in the marketing of these products worked out to 20.64 to 43.24 per cent.

TABLE 21. Built up* of Consumer Prices for Fruit and Vegetable Products in Bombay

	Ex-factory prices	Central Excise @10%	Central Sales Tax	Freight and forwarding	Agents/whole-salers margins	Octroi Duty @7%	Retailers margins	State Sales Tax @ 12% on squash and 8% on other items	Consumer price in Bombay
<i>Orange Squash</i> 12 × 680 ml									
Kissan	100.00	10.00	4.40	3.38	6.70	7.46	18.48	18.00	168.42
Dipy's	100.00	10.00	..	..	9.75	..	15.97	16.28	152.00
Noga	100.00	10.00	..	4.44	7.70	..	14.06	16.34	152.54
<i>Mixed Fruit Jam</i> 24 × 450 g									
Kissan	100.00	10.00	4.40	3.38	6.70	7.46	21.37	12.25	165.56
Dipy's	100.00	10.00	..	..	8.65	..	15.56	10.72	144.91
Noga	100.00	10.00	..	4.44	7.13	..	20.00	11.32	152.94
<i>Tomato Ketchup</i> 24 × 360 g									
Dipy's	100.00	10.00	..	..	8.00	..	15.17	10.64	143.81
<i>Pineapple Slices</i> 24 × 850 g									
Kissan	100.00	10.00	4.40	4.24	4.60	8.58	14.00	11.65	157.50

* This is only built up from ex-factory to the consumer but not the actual prices.

CHAPTER VI

INCIDENCE OF TAXES AND DUTIES

Incidence of taxes is usually defined as the point where the direct money burden of the taxes settles or comes to rest. There have been controversies over the incidence of indirect taxes with regard to their forward and backward shifting. Owing to the demand for the industry's products being elastic to price changes the high indirect taxes on these products have been shared more by the industry than by the consumer. The industry has been adversely affected by the imposition of various taxes and duties on the subsidiary raw materials and packing materials at various stages. These taxes have pushed up the cost of production and prices influencing substantially the gross sales and the profits of the industry. The deteriorating sales result in cut-back in production with consequent increases in per unit cost of production with higher fixed costs. So with the introduction of taxes and duties, the price that consumer pays, after all the adjustments to the new taxes, is rendered higher by either more or less than the amount of the tax.

Quantitative analysis of the distributional effect of indirect taxes is beset with numerous problems. The effect of indirect taxes on this industry has been assessed through the demand analysis in Chapter III. In this chapter the burden of taxes and duties in the ex-factory cost of production as well as element of taxes and duties in the final consumer prices have been analysed for assessing their implications on the growth of this industry.

The ex-factory cost of production comprises prime raw materials, subsidiary raw materials, packing materials and conversion costs. Barring prime raw materials and conversion costs other elements, i.e., subsidiary raw materials and packing materials are loaded with taxes and duties at various levels. Table 22 indicates the rates of taxes and duties levied on various subsidiary raw materials and packing materials required for the processing of fruits and vegetables.

Taxes on Subsidiary Raw Materials

Sugar:—Sugar is a major subsidiary raw material utilised by this industry in the production of a wide range of fruit based items such as jams, squashes, preserves, tomato ketchup, fruit in syrup, etc. While sugar is made available at levy price of Rs 215 per quintal for export production, the same facility is not available for domestic sale of these products with the result that the manufacturing units have to pay as high as Rs 500 per quintal for sugar in the open market. Price of Rs 500 per quintal contains almost Rs 120 as the share of taxes at various levels.

Levy price of sugar is fixed, whereas the open market price of sugar is subject to variations caused by the forces of demand and supply. Thus the price of sugar inflates the cost of production not only on account of taxes in the price of sugar but also due to other factors escalating the price of sugar in the open market.

TABLE 22. *Taxes and Duties on Subsidiary Raw Materials and Packing Materials*

Subsidiary raw materials :

Sugar	..	Central Excise Duty	: 30% + 7.5%
		Central Sales Tax	: 4%
		Octroi Duty in Bombay	: 2%
Citric acid	..	Import Duty	: 60%
		Central Sales Tax	: 4%
		Octroi Duty in Bombay	: 2%
Essences and colours	..	Central Sales Tax	: 4%
		Sales Tax	: 12%
		Octroi Duty in Bombay	: 2%

Packing materials :

Cans	..	Import Duty on Tin	: 45%
		Countervailing Duty on Tin	: Rs 520 per tonne
		Excise Duty on Cans	: 15%
		Central Sales Tax	: 4%
		Sales Tax	: 8%
		Octroi Duty in Bombay	: 2%
Glass bottles/jars	..	Excise Duty on Soda Ash	: Rs 110 per tonne
		Excise Duty on Furnance Oil	: Rs 100 + Rs 56/KL
		Excise Duty on Bottles/Jars	: 30%
		Central Sales Tax	: 4%
		Sales Tax	: 8%
		Octroi Duty in Bombay	: 2%
Cartons	..	Excise Duty on Paper Board	: Rs 1.20 per kg
		Central Sales Tax	: 4%
		Sales Tax	: 8%
		Octroi Duty in Bombay	: 2%

Citric Acid:—Citric acid is another subsidiary raw material which is an essential input for this industry. It is an imported raw material attracting import duty @ 60 per cent ad valorem. Besides import duty this raw material is loaded with other taxes such as central sales tax, state sales tax when it reaches the manufacturing unit. Since preservative chemicals, essences and colours constitute very negligible share in the cost of production, the tax burden in the cost of production on account of these raw materials is not very significant.

Packing Materials

The inputs required for the production

of packing and packaging materials are subject to various kinds of taxes and duties. To cap it all there is once again excise duty, sales tax (central as well as state) and octroi on the finished products. All these factors contribute to the escalation of the cost of packing materials required by this industry. The packing materials used by the industry include cans, glass bottles/jars and metal caps and closures. Cans so far have been fabricated from the imported tinplates. Following data indicate the working of the tinplates cost to the fabricators in India for various types of cans.

The cost of cans is loaded with taxes and duties at various levels and the share

		(Rs. per tonne)			
		Juice	Jam	Butter	A 10
C.I.F. price	..	B 5213 E 5055	4665	4432	4990
Import Duty at 45% + Counter- vailing excise duty at Rs 520 per tonne		B 2866 E 2795	2619	2515	2765
Sale commission at 4%	..	B 206 E 200	186	176	198
Landed price including Rs 50/ tonne of clearance charges		B 8335 E 8100	7520	7173	8003

Source : Metal Box Company of India Ltd., Calcutta.

of taxes and duties in the cost of various sizes of cans to the canners is explained in Table 23.

Glass bottles and jars are the other popular packing materials. Besides 30

per cent excise on glass bottles and jars, raw materials used in their manufacture also attract taxes and duties. Following data indicate the taxes levied on the inputs going into the manufacturing of glass bottles and jars.

Item	Consumption of raw materials/consumables per M.T. of finished products		Rates of duty		Duty incidence
	Qty in M.T.	Val. (Rs)			
Soda ash	.. 0.196	248.31	Excise Duty	Rs 100/M.T.	32.14
			C.S.T.	4%	
			Octroi	Rs 5/M.T.	
Furnace oil	— 0.462 KL	351.43	Excise Duty	Rs 137.36/KL	80.38
			S.T.	3%	
			Octroi	2%	
L.D. oil	.. 0.050 KL	46.55	Excise Duty	178.11/KL	10.91
			S.T.	3%	
			Octroi	1½%	
			Total	..	123.43

Source : Mahalakshmi Glass Works, Bombay.

TABLE 23. *Share of Taxes and Duties in the Cost of Various Sizes of Cans*

(Per 1000 Cans)

	170 ml Juice	Jam	Tall	Butter	A2½	A10
Basic price of cans including max. rebate	508.30	837.20	968.76	1238.64	1422.24	4473.04
<i>Government Levies</i>						
Customs duty and counter-vailing Excise duty on Tinsplate	111.95	186.73	216.33	279.67	349.68	1040.75
Customs duty and counter-vailing Excise duty on tin and lead used for solder	6.96	7.33	9.53	6.23	9.93	14.66
Excise and S.T. on solder ..	0.86	0.90	1.18	0.76	1.22	1.81
Duty on L/cpd ..	2.50	3.75	3.75	4.58	4.58	9.75
Total levy on raw material ..	122.27	198.71	230.79	291.24	265.41	1066.97
Per cent ..	28.8	28.4	28.5	28.7	30.7	28.5
Excise on containers at 15% ..	63.75	105.00	121.50	171.00	178.50	651.00
Sales Tax at 4% ..	19.55	32.20	37.26	47.64	54.74	172.04
Total duty including duty on containers	205.57	335.91	389.55	509.88	598.65	1800.01
Per cent ..	48.4	47.8	48.1	50.0	50.3	48.1
Cost of cans excluding all Government levies	302.73	501.29	579.21	728.76	823.59	2673.03

Source : Metal Box Company of India Ltd., Calcutta.

The products packed in glass bottles and jars require aluminium pilfer proof closures and 58 mm R.S.M.P. closures.

The element of taxes and duties in the cost of closures is explained by Table 24.

TABLE 24. *Aluminium Pilfer Proof Closures for Squashes*

	Rs/1000
Basic prices per 1000 ..	100.00
Excise and S.T. on Aluminium at 7.24/Kg ..	14.48
Customs duty on cork lining at 4% ..	7.60
Excise at 1% on finished material + 4% S.T. }	..
Excise on Decoration material ..	0.25
Excise on Cardboard Carton ..	0.45
Excise on Closures ..	20.00
Sales tax at 4% ..	4.80
Total Tax ..	47.58
	<u>47.5%</u>

58 mm R.S. M.P. Closures

Rs per Kg

Aluminium :

Basic price of aluminium	..	14.05
Excise 40%	..	5.62
Additional Excise	..	0.80
		<u>20.47</u>
C.S.T. 4%	..	0.82
Freight	..	0.32
Landed Factory Price	..	<u>21.59</u>

Lining Compound :

C.I.F. Price	..	14.80
Customs duty 75%	..	11.10
Landed price including clearance and transport	..	<u>26.30</u>

Rs per 1000

Price of caps FOR Bangalore	..	308.00
Excise 5.10 kg at 7.24 on aluminium	..	36.92
C. duty on $1\frac{1}{4}$ L/cpd	..	16.75
Excise on Decr.	..	1.30
Excise on Packing	..	0.90
Excise on closures 1%	..	3.08
C.S.T. at 4%	..	12.44
Total Excise	..	<u>71.39</u>
		23.2%

The share of taxes and duties depends ultimately on the quantum of raw materials utilised in the manufacture of end products. In order to determine the share of various elements in the ex-factory cost of production of representative products, the cost structure analysis of the industry has been attempted in Chapter IV. As the ex-factory cost structure showed variations from unit to unit and from product to product, the cost structure of the most competitive

units of the industry in respect of representative products has been taken to determine the share of taxes and duties in the ex-factory cost of production. Based on the rates of taxes and duties on various raw materials, share of taxes and duties in cost of various elements in the ex-factory cost of production of mixed fruit jam, orange squash, tomato ketchup and canned green peas has been worked out in Table 25.

TABLE 25. *Share of Taxes and Duties in the Ex-Factory Cost of Production*

		Value : Rs. per case			
		Mixed fruit jam 24 × 450 g bottle	Orange squash 12 × 680 ml bottle	Tomato Ketchup 12 × 770 g bottle	Canned green peas 24 × 1b can
<i>Raw Materials</i>					
Fresh fruit/vegetable		12.42 (nil)	70.09 (nil)	11.20 (nil)	21.50 (nil)
Sugar	..	32.72 (7.52)	18.13 (4.17)	11.32 (2.60)	2.25 (0.52)
Chemicals and preservatives		10.22 (1.25)	3.31 (0.40)	1.39 (0.17)	3.93 (0.47)
Total	..	55.36 (18.77)	28.53 (4.57)	23.91 (2.77)	27.68 (0.99)
<i>Packing Materials</i>					
Bottles/cans	..	23.95 (6.34)	11.38 (3.30)	11.38 (3.30)	35.76 (17.99)
Other packing materials		5.88 (0.53)	8.45 (0.76)	6.19 (0.56)	6.78 (0.61)
Total	..	29.83 (6.87)	19.83 (4.06)	17.57 (3.85)	42.54 (18.60)
Conversion Charges	..	15.68 (0.50)	9.61 (0.50)	11.79 (0.50)	22.34 (0.50)
Total ex-factory cost	..	100.87 (16.14)	57.97 (9.13)	53.27 (7.12)	92.56 (20.09)
Element of indirect taxes on ex-factory cost of production		16.14 19%	9.13 19%	7.12 15%	20.09 28%

Figures in brackets indicate the share of various taxes and duties in the elements of cost.

Products with High Sugar Content

All products containing more than 50% sugar content such as jams, jellies and marmalades have been categorised under this group. The cost of production and the proportion of taxes and duties have been studied for a representative item, i.e. mixed fruit jam. In order to have some realistic estimates, the cost structure of various units have been examined. Finally, the cost structure of mixed fruit jam has been taken for the most competitive unit in the entire industry.

The ex-factory cost of production of the most competitive/popular unit during 1976 worked out to Rs 100.87 per case of 24 × 450 g. Share of taxes and duties for various elements of cost has been shown in brackets. It will be observed that while there are no levies on prime raw materials, the share of taxes and duties in the cost of subsidiary raw materials amounted to Rs 8.77 and for packing materials Rs 6.87. Thus the tax component in the total factory cost of Rs 100.87 amounted to Rs 16.14. The

ex-factory cost of production would have been Rs 84.73 instead of Rs 100.87 had there been no taxes and duties on the subsidiary raw materials and packing materials. Thus the indirect taxes of Rs 16.14 inflates the intrinsic ex-factory cost of production by 19 per cent.

Products with Low Sugar Content

Products containing less than 50 per cent sugar content like squashes, juices, pulps, tomato ketchup, tomato puree and nectars constitute this group. Here again representative items like orange squash and tomato ketchup have been studied. In order to arrive at some realistic estimates of the share of indirect taxes in the cost of production, the most competitive units have been selected for the study.

In case of orange squash (12×680 ml) ex-factory cost of production of this unit during 1976 worked out to Rs 57.97. It would be seen from the table that the taxes and duties on subsidiary materials amounted to Rs 4.57 whereas tax on the packing materials amounted to Rs 4.06. The indirect taxes paid in the total conversion charges were, however, estimated at Rs. 0.50 only. Thus the total indirect taxes of Rs 9.13 inflate the actual ex-factory cost of production of Rs 48.84 by about 19 per cent.

Tomato ketchup is another important product with low sugar content in the domestic sector. Since tomato cultivation has been taken up in Karnataka on a large-scale, a large-scale unit with acceptable brand and most competitive prices has been selected for the study of cost structure to determine the incidence of taxes and duties. In a case of 12×770 g bottles of tomato ketchup, the ex-factory cost of production during 1976 worked to Rs 53.27. Since there is very little sugar in the raw materials, the incidence of taxes on subsidiary raw

materials was only Rs 2.77. The packing materials attracted heavy rates of taxes and the share of taxes and duties paid in the packing materials was Rs 3.85. Thus the total indirect tax of Rs 7.12 on the ex-factory cost of Rs 46.15 worked to about 15 per cent.

Products with Little Sugar Content

Among the products with little or no sugar content 'green peas in cans', an important item in the domestic sector, has been taken up for study. Since peas are an important crop in Northern India and the prime raw material, i.e., the green peas, plays an important role in the cost of production, a very competitive unit in Northern India has been selected for studying the cost structure for this product. In case of canned peas, the ex-factory cost of production of this unit during 1976 worked out to Rs 92.56 for a case of 24×800 g. The incidence of taxes on subsidiary raw materials was only Rs 0.99 since sugar is not an important raw material in this case. The packing materials attracted heavy rates of taxes with their share being Rs 18.60 in the cost of production. In the conversion charges, the share of taxes and duties was only Rs 0.50. Thus the total indirect taxes paid on the actual ex-factory cost of Rs 72.45 amounted to Rs 20.09 which worked to about 28 per cent.

The burden of indirect taxes in the ex-factory prices of finished products gets aggravated with the super-imposition of central excise duty on the intrinsic price which is already loaded with taxes to the tune of 15 to 28 per cent. In order to market these products the prices get inflated by other taxes like central sales tax, octroi duty and state sales tax.

So a manufacturer of processed fruit and vegetable located in the fruit growing region has to pay almost 12 to 13 per cent more to reach the consumers in the

cosmopolitan cities like Bombay. Table 26 indicates the comparative incidence of taxes and duties for the products manufactured in Bombay and other states to reach the Bombay consumers.

Foregoing analysis of the taxes and duties on the processed fruits and vegetables lead to following conclusions :

- The incidence of taxes and duties varied from 30.64 per cent to 52.86 per cent to a consumer in Bombay.
- In respect of the products manufactured in Bombay the incidence of taxes and duties was less as
- Units located away from Bombay or any other cosmopolitan city are at a disadvantage since their products are subject to central sales tax and octroi duty.
- Though there are advantages of cheap fruit and vegetable raw materials in the growing regions, the taxes, duties and marketing costs act as disincentives for the setting up of units away from the cosmopolitan cities.

TABLE 26. *Incidence of Taxes and Duties to the Consumer of Various Products of Fruit and Vegetable Processing Industry in Bombay*

		Indirect taxes paid in the cost of production	Excise Duty	Central Sales Tax	Octroi Duty	State Sales Tax	Total
<i>Orange Squash</i>							
Kissan	..	13.00	10.00	4.40	7.46	18.00	52.86
Dipy's	..	13.00	10.00	..	..	16.28	39.28
Noga	..	13.00	10.00	..	..	16.34	39.34
<i>Mixed Fruit Jam</i>							
Kissan	..	12.42	10.00	4.40	7.46	12.25	46.53
Dipy's	..	12.42	10.00	..	..	10.72	33.14
Noga	..	12.42	10.00	..	..	11.32	33.74
<i>Tomato Ketchup</i>							
Dipy's	..	10.00	10.00	..	..	10.69	30.64
<i>Pineapple Slices</i>							
Kissan	..	16.69	10.00	4.40	8.58	11.65	51.32

ANNEXURES

ANNEXURE 1 (a)

CLASSIFICATION OF UNITS IN TERMS OF QUANTITY AND VALUE (1970)

A. Quantity Basis

Range	Reporting Licencees		Production		Corresponding Value	
	Number	% of total	Tonnes	% of total	000 Rs	% of total
<i>Total Annual Production not exceeding 10 tonnes</i>						
Nil ..	173	15.8	..	..	..	..
Less 1 tonne ..	152	13.9	101	0.1	542	0.2
More than 1 tonne up to 10 tonnes	407	37.2	1692	1.1	5544	1.7
<i>Total Annual Production not exceeding 250 tonnes</i>						
More than 10 tonnes up to 50 tonnes	194	17.7	4207	2.7	11516	3.5
More than 50 tonnes up to 100 tonnes	53	4.8	4015	2.6	10600	3.2
More than 100 tonnes up to 250 tonnes	51	4.7	7736	4.9	22103	6.8
<i>Total Annual Production exceeding 250 tonnes</i>						
More than 250 tonnes up to 500 tonnes	24	2.2	8997	5.8	25277	7.7
More than 500 tonnes up to 1000 tonnes	12	1.1	8039	5.1	31048	9.5
Over 1000 tonnes ..	28	2.6	121246	77.7	220010	67.4
Total ..	1094	100.0	156033	100.0	326640	100.0

B. Value Basis

Range	Reporting licencees		Value		Corresponding output	
	Number	% of total	000 Rs.	% of total	Output (tonnes)	% of total
<i>Value of Production not exceeding Rs. 50,000</i>						
Nil ..	173	15.8	..	..	..	..
Up to Rs. 10,000 ..	408	37.3	1983	0.6	901	0.6
More than Rs. 10,000 up to Rs. 50,000	254	23.2	6471	2.0	2819	1.8
<i>Value on Production not exceeding Rs. 1,00,000</i>						
More than Rs. 50,000 up to Rs. 1,00,000	74	6.8	5130	1.6	2035	3.1
<i>Value of Production exceeding Rs. 1,00,000</i>						
More than Rs. 1,00,000 up to Rs. 5,00,000	105	9.6	23415	7.1	9010	5.8
More than Rs. 5,00,000 up to Rs. 10,00,000	23	2.1	15737	4.8	6298	4.0
More than Rs. 10,00,000 up to Rs. 15,00,000	16	1.5	17881	5.5	5355	3.4
More than Rs. 15,00,000 up to Rs. 20,00,000	8	0.7	13676	4.2	5369	3.5
More than Rs. 20,00,000 ..	33	3.0	242347	74.2	124246	79.6
Total ..	1094	100.0	326640	100.0	156033	100.0

Source : Directorate of Marketing and Inspection, Fruit and Vegetable Preservation in India—1970, Statistics of Production and Exports, Nagpur, 1972.

ANNEXURE 1 (b)

CATEGORY-WISE AND ITEMWISE OUTPUT OF PROCESSED FRUIT AND VEGETABLE INDUSTRY IN INDIA

Category and Item				Qty : Tonnes Val : Rs. Thousand	
		1969		1970	
		Qty	Val.	Qty	Val.
1. Canned and Bottled Fruits					
Mango	..	654	22,83	715	27,07
Pineapple	..	1,121	30,08	1,567	42,88
Orange	..	..	..	Neg.	1
Others	..	1,339	49,51	1,292	48,02
Total	..	<u>3,114</u>	<u>1,02,42</u>	<u>3,574</u>	<u>1,17,98</u>
2. Canned Vegetables					
Mushrooms	..	..	..	14	2,41
Peas	..	1,395	29,14	1,960	43,04
Potatoes	..	1,888	42,86	1,713	34,82
Others	..	1,772	41,56	2,069	47,09
Total	..	<u>5,055</u>	<u>1,13,56</u>	<u>5,756</u>	<u>1,27,36</u>
3. Fruit Jams, Jellies and Marmalades					
Mango jam	..	144	6,61	207	9,08
Pineapple jam	..	440	18,39	393	19,55
Apple jam	..	..	..	17	75
Orange jam	..	1	4	52	2,63
Other jams	..	1,683	83,56	1,687	84,29
Mango jelly	..	6	36	1	6
Pineapple jelly	..	6	38	10	32
Orange jelly	..	6	35	1	4
Guava jelly	..	178	775	218	10,90
Other jellies	..	41	221	17	86
Orange marmalade	..	194	799	299	16,02
Other marmalades	..	39	147	3	13
Total	..	<u>2,738</u>	<u>15,485</u>	<u>2,905</u>	<u>14,463</u>

		1969		1970	
		Qty	Val.	Qty	Val.
4. Fruit juices and Pulps					
Mango juice	..	6,493	1,41,78	7,613	1,58,98
Pineapple juice	..	1,244	29,55	1,570	39,03
Orange juice	..	300	8,56	497	11,91
Apple juice	..	200	12,21	362	19,98
Lemon juice	..	313	3,97	347	5,21
Other juices	..	137	4,01	214	5,86
Mango pulp	..	994	34,48	806	32,64
Pineapple Pulp	..	128	3,31	90	1,35
Orange pulp	..	3	8	2	7
Apple pulp	..	35	74	13	20
Other pulps	..	42	97	82	230
Total	..	<u>9,889</u>	<u>2,39,66</u>	<u>11,596</u>	<u>2,77,53</u>
5. Candied and Crystallised Fruits					
	..	165	6,95	244	10,16
6. Fruit Preserves					
Mango	..	22	65	25	73
Apples	..	873	31,18	981	31,00
Amla	..	1,063	28,47	996	26,71
Others	..	1,037	27,40	1,325	35,37
Total	..	<u>2,995</u>	<u>87,70</u>	<u>3,327</u>	<u>93,81</u>
7. Chutneys					
Mango	..	1,088	41,29	1,050	33,34
Others	..	183	4,78	353	11,83
Total	..	<u>1,271</u>	<u>46,07</u>	<u>1,403</u>	<u>45,17</u>
8. Pickles					
Mango	..	2,949	56,58	3,256	65,11
Lime	..	624	12,35	1,129	20,11
Others	..	1,830	27,89	2,418	45,02
Mango slices in brine	..	1,599	22,31	1,184	16,31
Total	..	<u>7,002</u>	<u>1,19,13</u>	<u>7,987</u>	<u>1,46,55</u>

		1969		1970	
		Qty	Val.	Qty	Val.
9. <i>Tomato Products</i>					
Canned	..	370	9,71	253	6,36
Ketchup, sauce, puree, etc.	..	1,808	57,52	1,649	70,07
Other products	..	280	8,30	256	6,72
Total	..	<u>2,458</u>	<u>75,53</u>	<u>2,158</u>	<u>83,15</u>
10. <i>Fruit Squashes Syrups, nectars and ready-to-serve beverages</i>					
Mango squash	..	170	679	317	10,75
Pineapple squash	..	152	6,18	210	8,75
Orange squash	..	1,668	62,87	2,618	1,00,20
Lemon squash	..	929	29,37	1,289	49,39
Other squashes	..	265	10,63	186	796
Mango syrup	..	1	6	10	20
Pineapple syrup	..	96	412	83	381
Orange syrup	..	12	58	1	10
Other syrups	..	71	401	57	204
Mango nectars	..	188	645	689	24,07
Other nectars	..	12	40	14	46
Mango R.T.S.	..	1,834	33,77	1,902	35,83
Pineapple R.T.S.	..	231	445	358	603
Orange R.T.S.	..	82	308	33	67
Other R.T.S.	..	269	579	257	463
Total	..	<u>6,048</u>	<u>1,83,50</u>	<u>8,023</u>	<u>2,54,89</u>
11. <i>Dehydrated Fruits and Vegetables</i>					
Mango	..	7	79	71	1,25
Bananas	..	6	1,96	7	1,35
Peas	..	285	57,25	344	62,84
Other vegetables	..	93	608	471	33,20
Potatoes	..	159	8,67	N.A.	N.A.
Total	..	<u>550</u>	<u>74,75</u>	<u>893</u>	<u>98,64</u>

		1969		1970	
		Qty	Val.	Qty	Val.
12. <i>Frozen Fruits</i>	..	<u>169</u>	<u>14,13</u>	<u>131</u>	<u>9,74</u>
13. <i>Soups</i>					
Tomato	..	110	4.20	57	2,16
Others	..	38	4,70	50	5,87
	Total ..	<u>148</u>	<u>890</u>	<u>107</u>	<u>8,03</u>
14. <i>Sauces</i>					
Other than tomato	..	<u>454</u>	<u>9,91</u>	<u>442</u>	<u>10,96</u>
15. <i>Fruit Concentrates</i>	..	<u>14</u>	<u>96</u>	<u>41</u>	<u>2,81</u>
16. <i>Other products</i>	..	3	2	25	
<i>Total of Vegetable and Fruit products</i>		<u>42,404</u>	<u>12,16,26</u>	<u>50,188</u>	<u>14,35,74</u>
17. <i>Vinegars</i>					
Brewed	..	334	395	527	678
Synthetic	..	814	11,78	764	10,27
	Total ..	<u>1,148</u>	<u>15,73</u>	<u>1,291</u>	<u>17,05</u>
18. <i>Aerated Water Containing Fruit Juices</i>	..	<u>1,02,036</u>	<u>15,45,36</u>	<u>1,03,759</u>	<u>17,06,80</u>
19. <i>Synthetic Syrups</i>	..	<u>..</u>	<u>..</u>	<u>2,319</u>	<u>1,06.32</u>
<i>TOTAL ALL FPO PRODUCTS</i>	..	<u>1,47,436</u>	<u>28,80,08</u>	<u>1,56,033</u>	<u>32,66,40</u>

Source : Directorate of Marketing and Inspection. Fruit and Vegetable Preservation in India—1970, Statistics of Production and Exports, Nagpur, 1972.

ANNEXURE 1 (c)

FRUIT-WISE AND VEGETABLE-WISE OUTPUT OF PROCESSED FRUIT AND
VEGETABLE INDUSTRY IN INDIA

				Qty : Tonnes Val. : Rs. Thousand	
		1969		1970	
		Qty	Val.	Qty	Val.
1. Mango					
Canned	..	654	22,83	716	27,07
Dehydrated	..	7	79	71	1,25
Jams	..	144	6,60	207	9,08
Jellies	..	6	36	1	6
Juices	..	6,493	1,41,77	7,613	1,58,98
Pulps	..	994	34,48	806	32,64
Preserves	..	22	65	25	73
Squashes	..	170	6,79	317	10,75
Syrups	..	1	6	10	20
Nectars	..	188	6,45	689	24,07
R.T.S. Beverages	..	1,834	33,77	1,902	35,83
Chutneys	..	1,088	41,28	1,050	33,34
Pickles	..	2,949	56,59	3,256	65,11
Slices in Brine	..	1,599	22,31	1,184	16,31
Total	..	16,149	3,74,73	17,847	4,15,42
2. Pineapple					
Canned	..	1,121	30,10	1,566	42,88
Jams	..	440	18,39	393	19,55
Jelly	..	6	38	10	32
Juice	..	1,244	29,55	1,570	39,03
Pulp	..	128	3,31	90	1,35
Squash	..	152	6,18	210	8,75
Syrup	..	96	4,12	83	3,81
R.T.S. Beverages	..	231	4,45	358	6,03
Total	..	3,418	96,48	4,280	1,21,72

		1969		1970	
		Qty	Val.	Qty	Val.
3. Orange					
Canned	..	..	..	(a)	1
Jam	..	1	4	52	2,63
Jelly	..	6	35	1	4
Marmalades	..	194	7,99	299	16,02
Juice	..	300	8,56	497	11,91
Pulp	..	3	8	2	7
Squash	..	1,668	62,87	2,617	1,00,20
Syrup	..	12	58	1	10
R.T.S. Beverages	..	82	3,08	33	67
Total	..	<u>2,266</u>	<u>83,55</u>	<u>3,502</u>	<u>1,31,65</u>
4. Lime and Lemon					
Juice	..	313	3,97	347	5,21
Squash	..	929	29,37	1,289	49,39
Pickles	..	624	12,35	1,129	20,11
Total	..	<u>1,866</u>	<u>45,69</u>	<u>2,765</u>	<u>74,71</u>
5. Apple					
Jam	..			17	75
Jelly	..			4	18
Juice	..	200	12,21	362	19,88
Pulp	..	35	74	12	20
Preserves	..	873	31,18	981	31,00
Total	..	<u>1,108</u>	<u>44,13</u>	<u>1,376</u>	<u>52,11</u>
6. Amla					
Preserves	..	<u>1,063</u>	<u>28,47</u>	<u>996</u>	<u>26,71</u>
7. Guava					
Jelly	..	<u>178</u>	<u>7,75</u>	<u>218</u>	<u>10,90</u>
8. Bananas					
Dehydrated		6	1,96	7	1,35

		1969		1970	
		Qty	Val.	Qty	Val.
9. Other Fruits					
Canned	..	1,339	49,51	1,292	48,02
Frozen	..	169	14,13	131	9,74
Candied and Crystallised	..	165	6,95	244	10,16
Concentrate	..	14	96	41	2,81
Jams	..	1,683	83,56	1,687	84,29
Jellies	..	41	2,21	13	68
Marmalades	..	39	1,47	3	13
Juices	..	137	4,01	214	5,86
Pulp	..	42	97	83	2,30
Preserves	..	1,037	27,48	1,325	35,37
Squashes	..	265	10,63	186	7,96
Syrups	..	71	4,01	57	2,04
Nectars	..	21	40	14	46
R.T.S. Beverages	..	269	5,79	257	4,63
Brewed Vinegars	..	334	3,95	527	6,78
Misc. Products	..	..	3	2	25
Total	..	<u>5,685</u>	<u>2,20,93</u>	<u>6,076</u>	<u>2,21,48</u>
10. Peas					
Canned	..	1,395	29,14	1,960	43,04
Dehydrated	..	285	57,25	344	62,84
Total	..	<u>1,680</u>	<u>86,39</u>	<u>2,304</u>	<u>1.05,88</u>
11. Tomato					
Canned	..	370	9,70	253	6,36
Ketchup, Sauce, Puree, etc.	..	1,808	57,52	1,649	70,07
Soups	..	110	4,20	57	2,16
Other Products	..	280	8,30	256	6,72
Total	..	<u>2,568</u>	<u>79,73</u>	<u>2,215</u>	<u>85,31</u>

		1969		1970	
		Qty	Val.	Qty	Val.
12.	<i>Potatoes</i>				
	Canned	.. 1,883	42,86	1,713	34,82
13.	<i>Mushrooms</i>				
	Canned		..	14	2,41
14.	<i>Other Vegetables</i>				
	Canned	.. 1,772	41,56	2,069	47,09
	Dehydrated	.. 93	6,08	471	33,20
	Soups	.. 38	4,70	50	5,87
	Sauces	.. 454	9,91	442	10,96
	Chutneys	.. 183	4,78	353	11,83
	Pickles	.. 1,830	27,89	2,418	45,02
	Total	.. 4,370	94,92	5,803	1,53,97
15.	<i>Miscellaneous</i>				
	Aerated Water containing Fruit Juices	.. 1,02,036	15,45,36	1,03,759	17,06,80
	Synthetic Jellies	.. 65	3,63	75	4,57
	Synthetic Syrups	.. 2,117	1,03,05	2,319	1,06,32
	Synthetic Vinegars	.. 814	11,78	764	10,27
	Total	.. 1,47,436	28,80,08	1,56,033	32,66,40

Source : Directorate of Marketing and Inspection, Fruit and Vegetable Preservation in India—1970, Statistics of Production and Exports, Nagpur, 1972,

ANNEXURE 1 (d)

OUTPUT OF FRUIT AND VEGETABLE PRODUCTS DURING 1974

Qty : Tonnes
Val. : Rs. Lakhs

Sl. No.	Name of the Product	Western Zone		Eastern Zone		Northern Zone		Southern Zone		Northern Eastern Zone		Total	
		Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.
1.	Canned fruits ..	198	3.07	283	13.05	486	33.90	2329	138.05	267	16.86	3563	204.93
2.	Canned vegetables..	968	39.10	1242	51.53	2430	100.29	1949	83.57	869	34.14	7458	308.63
3.	Jam groups ..	777	66.23	226	18.25	287	24.12	1275	107.22	391	33.36	2956	249.18
4.	Preserves ..	317	18.67	..	..	2669	117.94	0.24	0.03	341	20.41	3327.24	157.02
5.	Juices and pulps ..	4377	256.30	87	4.24	893	56.81	4691	235.48	129	4.33	10177	557.16
6.	Synthetic syrups ..	623	46.06	36	3.20	1422	106.77	470	22.54	143	10.47	2694	189.04
7.	Squashes ..	3140	163.78	41	2.34	509	36.14	2515	133.17	628	43.37	6833	378.80
8.	Pickles ..	5701	211.63	204	11.66	3051	59.67	646	50.03	336	12.58	9938	345.57
9.	Chutneys ..	549	33.17	1171	49.77	38	1.43	36	4.13	3	0.27	1797	88.77
10.	Synthetic vinegar ..	651	16.89	82	2.60	549	15.98	204	4.58	31	0.83	1517	40.88
11.	Tomato ketchup, sauce and tomato juice, etc.	949	45.85	66	3.70	285	21.79	883	63.39	424	28.20	2607	162.93
12.	Other sauces ..	..	..	57	2.96	133	3.65	..	..	18	0.49	208	7.10
13.	Dehydrated vegetables.	450	50.45	..	..	234	46.50	65	8.68	1	0.41	750	106.04
14.	R.T.S. Beverages ..	..	..	5	0.17	126	4.98	3	0.06	184	9.07	318	14.28
15.	Tamarind concentrate.	2	0.17	..	..	..	..	36	2.93	..	..	38	3.10
16.	Synthetic jelly ..	..	..	22	2.17	..	..	12	1.06	..	..	22	2.17
17.	Frozen products ..	2427	36.56	..	..	..	..	..	..	..	..	2439	37.62
18.	Miscellaneous ..	269	7.84	..	..	..	..	..	..	..	..	269	7.84
19.	Aerated waters ..	26219	1012.11	5135	141.82	43739	990.98	23847	638.83	8281	163.30	107221	2947.04
20.	Soups ..	..	..	6	0.38	12	0.68	..	..	..	..	18	1.06
21.	Nectars ..	..	..	..	..	759	50.12	..	..	..	..	759	50.12
22.	Crystallised fruits ..	..	..	..	..	111	5.30	..	..	..	..	111	5.30
Total of Fruit and Vegetable products		20122	932.65	3388	158.05	12023	563.32	14404	824.87	3591	203.49	53528	2682.38
Grand Total		47617	2007.88	8663	307.84	57733	1677.05	38961.24	1493.75	12046	378.09	165020	5864.61

Note : Fruit and vegetable products exclude items at serial No. 6, 10, 15, 16 and 19.
Source : Subsidiary Food and Nutrition Division, Ministry of Agriculture and Irrigation, New Delhi.

ANNEXURE 1 (c)

TIME SERIES DATA OF CATEGORY-WISE PRODUCTION PROCESSED FRUITS
AND VEGETABLES IN INDIA

						Qty : Tonnes Val. : Rs. Thousand	
Year		Canned and Bottled Fruits		Canned Vegetables		Fruit Jams, Jellies and Marmalades	
		Qty	Val.	Qty	Val.	Qty	Val.
1961	..	2,409	5,057	4,700	7,535	2,202	5,233
1962	..	2,471	5,490	5,508	8,890	2,997	6,526
1963	..	3,038	7,196	9,364	16,636	2,279	6,140
1964	..	3,363	7,885	7,971	12,999	2,986	8,050
1965	..	4,429	11,626	10,323	18,725	3,260	9,838
1966	..	3,740	10,681	5,895	11,742	3,073	9,806
1967	..	4,276	12,749	6,814	14,530	3,425	12,993
1968	..	3,684	11,826	6,132	13,412	3,165	14,586
1969	..	3,114	10,242	5,055	11,356	2,738	13,274
1970	..	3,574	11,798	5,756	12,736	2,905	14,463
1971	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1972	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1973	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1974	..	3,563	20,493	7,458	30,863	2,956	24,918
Year		Fruit Juices and Pulps		Fruit Preserves		Candied and Crystallised fruit	
		Qty	Val.	Qty	Val.	Qty	Val.
1961	..	2,374	4,633	2,912	3,624	59	110
1962	..	2,811	6,275	3,435	5,189	75	129
1963	..	2,850	6,705	3,080	4,810	164	292
1964	..	4,223	9,228	3,186	6,112	164	367
1965	..	4,140	10,891	3,282	6,677	172	350
1966	..	5,581	15,054	3,998	7,634	170	477
1967	..	8,793	23,101	2,653	7,120	146	506
1968	..	7,891	21,524	2,818	8,785	176	703
1969	..	9,889	23,966	2,995	8,770	165	695
1970	..	11,596	27,753	3,327	9,381	244	1,016
1971	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1972	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1973	..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1974	..	10,177	55,716	3,327	15,702	111	530

Year	Chutneys		Pickles		Tomato Products	
	Qty	Val.	Qty	Val.	Qty	Val.
1961 ..	1,349	2,782	5,232	5,037	1,731	3,449
1962 ..	1,316	2,613	5,486	6,048	2,054	4,069
1963 ..	1,150	2,393	5,386	5,421	1,507	3,454
1964 ..	1,098	2,347	6,391	7,598	2,237	5,545
1965 ..	1,243	2,914	5,575	8,666	2,300	5,631
1966 ..	1,449	4,060	5,531	7,903	2,080	5,930
1967 ..	1,337	4,333	6,360	9,788	1,998	6,322
1968 ..	1,292	4,582	5,717	9,551	1,851	6,266
1969 ..	1,271	4,607	7,002	11,913	2,458	7,553
1970 ..	1,403	4,517	7,987	14,655	2,158	8,315
1971 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1972 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1973 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1974 ..	1,797	8,877	9,938	34,557	2,607	16,293

Year	Squashes, Syrups, Nectars and Ready- to-Serve Beverages		Dehydrated Fruits and Vegetables		Frozen Fruit/ Products	
	Qty	Val.	Qty	Val.	Qty	Val.
1961 ...	5,453	8,279	..	..	..	..
1962 ..	6,296	11,865	41	475	13	27
1963 ..	5,453	8,279	95	1,183	18	36
1964 ..	6,159	15,267	110	1,777	10	21
1965 ..	9,707	20,305	209	3,274	4	22
1966 ..	9,282	22,239	464	5,816	3	8
1967 ..	8,426	23,568	496	6,972	252	1,463
1968 ..	6,259	18,600	344	4,847	213	1,505
1969 ..	6,048	18,350	550	7,475	169	1,413
1970 ..	8,023	25,489	893	9,864	131	974
1971 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1972 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1973 ..	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1974 ..	7,910	44,320	750	10,604	2,439	3,762

			Other Products		Total	
			Qty	Val.	Qty	Val.
1961	..		148	289	28,569	46,028
1962	..		154	361	32,657	57,957
1963	..		317	923	34,856	66,094
1964	..		408	804	38,311	77,698
1965	..		406	781	45,143	1,00,160
1966	..		597	661	42,002	1,04,006
1967	..		566	1,845	45,542	1,25,292
1968	..		616	1,358	40,158	1,17,545
1969	..		616	1,980	42,404	1,21,626
1970	..		592	2,205	50,188	1,43,574
1971	..		N.A.	N.A.	N.A.	N.A.
1972	..		N.A.	N.A.	N.A.	N.A.
1973	..		N.A.	N.A.	N.A.	N.A.
1974	..		495	1,603	53,528	2,68,238

Year	Synthetic Jellies		Synthetic Syrups		Synthetic Vinegars	
	Qty	Val.	Qty	Val.	Qty	Val.
1961	..	..	1,666	4,605	..	..
1962	..	..	2,241	5,713	..	..
1963	..	..	2,150	5,678	..	..
1964	..	..	2,362	6,067	1,001	986
1965	..	..	3,385	8,876	1,252	1,238
1966	..	..	3,552	11,060	1,204	1,536
1967	..	..	2,680	7,919	1,112	1,384
1968	..	..	1,989	10,554	1,094	1,481
1969	..	65	2,117	10,305	814	1,178
1970	..	75	2,319	10,632	764	1,027
1971	..	N.A.	N.A.	N.A.	N.A.	N.A.
1972	..	N.A.	N.A.	N.A.	N.A.	N.A.
1973	..	N.A.	N.A.	N.A.	N.A.	N.A.
1974	..	22	2,694	18,904	1,517	4,088

		Aerated Water		Grand Total	
		Qty	Val.	Qty	Val.
1961	..	16,550	13,667	47,762	65,602
1962	..	15,966	13,600	52,079	78,270
1963	..	24,183	20,939	62,120	93,655
1964	..	30,936	27,104	72,610	1,11,855
1965	..	40,430	36,873	90,210	1,47,147
1966	..	48,385	56,113	95,143	1,72,715
1967	..	48,990	60,026	98,324	1,94,619
1968		75,966	1,18,978	1,19,207	2,48,558
1969	..	1,02,036	1,54,536	1,47,436	2,88,008
1970	..	1,03,759	1,70,680	1,56,033	3,26,640
1971	..	N.A.	N.A.	N.A.	N.A.
1972	..	N.A.	N.A.	N.A.	N.A.
1973	..	N.A.	N.A.	N.A.	N.A.
1974	..	1,07,221	2,94,704	1,65,020	5,86,461

Source : (i) Directorate of Marketing and Inspection, Nagpur (for data from 1961 to 1970)
(ii) Food and Nutrition Board, New Delhi (data for 1974).

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USED BY LEADING FOOD AND FRUIT PROCESSING UNITS ALL OVER INDIA

ANNEXURE 2

LIST OF UNITS PRODUCING FRUIT AND VEGETABLE PRODUCTS AND ARE REGISTERED WITH THE DGTD

- | | |
|--|--|
| 1. Kaycee Plantation and Canning Ltd., Trichur, Kerala | 14. Dr. Writers 'Chocolates and Canning Co. Ltd.,' Bombay |
| 2. Darlco Cannings Co., Trichur, Kerala | 15. Midland Fruit and Vegetable Products India Ltd., New Delhi |
| 3. Spencer & Co. Ltd., Kanpur, U.P. | 16. Midland Fruit and Vegetable Products Ltd., Masani |
| 4. Allahabad Canning Co., Bamrauli, Allahabad, U.P. | 17. Tata Oil Mills Co. Ltd., Ghaziabad, U.P. (Since closed) |
| 5. Mahindra Food Products, Bombay | 18. Asian Dehydrates Ltd., Nasik, Maharashtra |
| 6. James Smith & Co., Bombay (Lessees M/s Rallis India Ltd.) | 19. Corn Products Pvt. Ltd., Bombay (Collaborator : Corn Products, U.S.A.—Financial collaboration) |
| 7. Canning Industries, (Cochin,) Ltd., Trichur, Kerala | 20. Indo-Bulgar Foods, Ghaziabad, U.P. (Since closed) |
| 8. Rai & Sons Pvt. Ltd., New Delhi | 21. Nasik District Co-operative Union Dehydration Plant Ltd., Nasik, Maharashtra |
| 9. Mohan Meakin Breweries Ltd., Mohan Nagar, U.P. | 22. Jullundur Co-operative Canneries Ltd., Jullundur, Punjab |
| 10. Hindustan Lever Ltd., Gaziabad, U.P.—(Since closed) (Collaborator : Uni-Lever, U.K.—Financial Collaboration) | 23. Saras Foods, 24, Brelvi Sayed Abdullah Road Bombay |
| 11. Herbertsons Ltd., Bombay | 24. Panipat Foods Ltd., Panipat |
| 12. Tims Products, Ltd., Belgharia, West Bengal | 25. Depro Foods, Sonapat |
| 13. Kissan Products Ltd., Bangalore (Collaborator : Schwepps, U.K.—Financial Collaboration) | 26. Tata Oil Mills Co. Ltd., Madras |
| | 27. Himachal Preserved Foods Pvt. Ltd., Nalagarh |

Source : Hand Book of Industrial Data, 1975, Directorate of Public Relations and Publications
Directorate General of Technical Development, New Delhi-110011.

ANNEXURE 3

STATE-WISE DISTRIBUTION OF FRUIT AND VEGETABLES PROCESSING UNITS IN INDIA DURING 1976

Sl. No.	States			No. of Units
1.	Andhra Pradesh	..	..	31
2.	Assam	..	..	11
3.	Bihar	..	..	8
4.	Gujarat	..	..	34
5.	Haryana	..	..	34
6.	Himachal Pradesh	..	..	15
7.	Jammu and Kashmir	..	..	23
8.	Karnataka	..	..	48
9.	Kerala	..	..	78
10.	Madhya Pradesh	..	..	20
11.	Maharashtra	..	..	199
12.	Meghalaya	..	..	6
13.	Nagaland	..	..	1
14.	Orissa	..	..	4
15.	Punjab	..	..	62
16.	Tamil Nadu	..	..	142
17.	Uttar Pradesh	..	..	79
18.	West Bengal	..	..	84

Union Territories

19.	Chandigarh	..	..	3
20.	Delhi	..	..	56
21.	Goa	..	..	16
22.	Manipur	..	..	1
23.	Pondicherry	..	..	2
24.	Tripura	..	..	2

Total	..	..	959
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Location of Units in each State

1. *Andhra Pradesh* : 31

Rajahmundry	..	1	Cuddapah	..	1	Secunderabad	..	8
Hyderabad	..	8	Kodur	..	1	Kakinada	..	1
Tanuku	..	1	Nellore	..	3	Chittoor	..	1
Anantapur	..	1	Tirupathi	..	1	Samalkot	..	1
Vijayawada	..	1	Nidadavole	..	1	Paderu	..	1

2. *Assam* : 11

Silchar	..	3	Cachar	..	1	Gauhati	..	3
Kamrup	..	1	Nowgong	..	2	Tinsukia	..	1

3. *Bihar* : 8

Patna	..	3	Muzaffarpur	..	2	Madhubani	..	1
Darbhanga	..	1	Jamshedpur	..	1			

4. *Gujarat* : 34

Bulsar	..	8	Ahmedabad	..	7	Surat	..	5
Navsari	..	1	Broach	..	1	Rajkot	..	4
Baroda	..	5	Nadiad	..	2	Bhavnagar	..	1

5. *Haryana* : 34

Panipat	..	9	Ambala Cantt. & City.	6	Markanda	..	1	
Karnal	..	3	Sirsa	..	2	Rewari	..	3
Rohtak	..	2	Palwal	..	2	Bhiwani	..	1
Shivaji Nagar	..	1	Ballabhgarh	..	1	Hissar	..	1
Sonepat	..	1	Faridabad	..	1			

6. *Himachal Pradesh* : 15

Simla	..	3	Solan	..	1	Sirmur	..	1
Kandaghat	..	1	Thanedar	..	1	Bagthan	..	1
Rajgarh	..	1	Chamba	..	3	Kulu	..	2
Kanclrori	..	1						

7. *J. & K.* : 23

Jammu	..	8	Srinagar	..	13	Sopore	..	1
Anantanag	..	1						

8. *Karnataka State* : 48

Mangalore	..	6	Kaup	..	1	Bangalore	..	20
Mysore	..	7	Belgaum	..	3	Moodbidri	..	1
Virajpet	..	1	Shimoga	..	2	Gonicopal	..	1
Khushalnagar	..	1	Sirsi	..	1	Dharwar	..	1
Hubli	..	1	Ullal	..	1	Ankola	..	1

9. *Kerala* : 78

Calicut	..	13	Wynad	..	1	Trichur	..	8
Punaloor	..	3	Bharananganam	..	2	Trivandrum	..	4
Cannanore	..	5	Cochin	..	7	Kottayam	..	4
Quilon	..	2	Palghat	..	2	Baliapatnam	..	1
Thodupuzha	..	1	Ettumanoor	..	1	Kanjirapally	..	1
Kunnamkulam	..	1	Nelliampathy	..	1	Mavelikara	..	1
Peermade	..	1	Chelakara	..	1	Alleppey	..	3
Changanacherry	..	1	Poovary	..	1	Athirampuzha	..	1
Irinjalakuda	..	1	Shertallai	..	1	Tellicherry	..	1
Koothali	..	1	Vellikulangara	..	1	Alwaye	..	1
Balarampuram	..	1	Neerveli	..	1	Chathanur	..	1
Karanchira	..	1	Ernakulam	..	1	Vaikkom	..	1

10. *Madhya Pradesh* : 20

Indore	..	6	Ujjain	..	1	Bhopal	..	1
Ratlam	..	1	Gwalior	..	5	Raipur	..	1
Datia	..	1	Rajgarh	..	1	Hoshangabad	..	1
Itarsi	..	1	Jabalpur	..	1			

11. *Maharashtra* : 199

Bombay	..	113	Jalgaon	..	8	Poona	..	18
Ratnagiri	..	25	Kolaba	..	4	Sholapur	..	2
Nagpur	..	8	Sabalpur	..	1	Amraothi	..	3
Bhusawal	..	2	Ulhas Nagar	..	4	Satara	..	3
Panchagauri	..	2	Nasik	..	4	Mahabaleshwar	..	1
Sangli	..	1						

12. Meghalaya : 6

Dainadubi	..	1	Shillong	..	4	Dawki	..	1
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13. Nagaland : 1

Changki	..	1
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14. Orissa : 4

Cuttack	..	1	Bhubaneswar	..	1	Rourkela	..	1
Gopalpur on-Sea	..	1						

15. Punjab : 62

Kotkapura	..	2	Pathankot	..	1	Amritsar	..	16
Hoshiarpur	..	4	Ludhiana	..	11	Jullundur	..	7
Ferozepur	..	3	Abohar	..	2	Bhatinda	..	2
Patiala	..	5	Faridkot	..	6	Sangrur	..	2
Gurdaspur	..	1						

16. Tamil Nadu : 142

Madras	..	56	Kumbakonam	..	3	Coimbatore	..	6
Tiruchi	..	9	Karaikudi	..	6	Turalyur	..	1
Tirunelveli	..	6	Gudiyattam	..	2	Paramakudi	..	1
Lalgudi	..	1	Devakottai	..	2	Pudukottai	..	5
Kancheepuram	..	2	Aruppukottai	..	2	Dindigul	..	4
Coonoor	..	1	Kodaikanal	..	1	Madurai	..	8
Tenkasi	..	1	Bathalagundu	..	2	Nagarcoil	..	7
Salem	..	2	Tanjore	..	2	Perambalur	..	1
Palani	..	1	Usilampatty	..	1	Sholavandan	..	1
Mettupalayam	..	1	Neyyoor	..	1	Tiruvavarur	..	1
Uppiliapuram	..	1	Vellore	..	1			
Shencottah	..	1	Ootacamund	..	2			

17. Uttar Pradesh : 79

Allahabad	..	7	Lucknow	..	19	Varanasi	..	16
Bareilly	..	6	Nainital	..	4	Kanpur	..	8
Jhansi	..	3	Karimganj	..	1	Lakhimpur	..	1
Barabanki	..	2	Chamoli	..	1	Ghazipur	..	2
Sitapur	..	2	Ramgarh	..	2	Unnao	..	1
Garhwal	..	1	Etah	..	1	Farrukabad	..	1
Faizabad	..	1	Basti	..	1			

18. *West Bengal* : 84

Calcutta	..	64	24 Parganas	..	8	Siliguri	..	3
Burdwan	..	1	Puraha	..	1	Malda	..	2
Jalpaiguri	..	2	Howrah	..	1	Darjeeling	..	1
Birbhum	..	1						

Union Territories

19. *Chandigarh* : 3

20. *Delhi* : 56

21. *Goa* : 16

Marmugao Harbour	..	1	Margao	..	7	Mapuca	..	3
Ponda	..	1	Salcete	..	1	Panaji	..	2
Charchorem	..	1						

22. *Manipur* : 1

Imphal 1

23. *Pondicherry* : 2

24. *Tripura* : 2

Agartala 2

ANNEXURE 4

PRODUCTION, EXPORT AND DOMESTIC CONSUMPTION OF PROCESSED FRUITS AND VEGETABLES

Qty : Tonnes
Val. : Rs. Lakhs

Year		No. of FPO Licences	All India Production of FPO Products		All India Production of F & V Products from India		Exports of F & V Products from India		Apparent Domestic Consumption	
			Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.
1961	..	901	47,762	656.02	28,569	460.28	2,462	48.80	26,107	411.48
1962	..	929	52,079	782.70	32,657	579.57	5,918	61.26	26,739	518.31
1963	..	899	62,120	936.55	34,856	660.94	3,058	67.12	31,798	593.82
1964	..	909	72,610	1118.55	38,311	776.98	4,715	103.49	33,596	673.49
1965	..	947	90,210	1471.47	45,143	1001.60	4,500	90.22	40,643	911.38
1966	..	946	95,143	1727.15	42,002	1040.06	5,527	153.19	36,475	886.87
1967	..	1015	98,324	1946.19	45,542	1252.92	6,109	173.65	39,433	1079.27
1968	..	1034	119,207	2485.58	40,158	1175.45	6,741	220.00	33,417	955.45
1969	..	1081	147,436	2880.08	42,404	1216.26	12,830	320.85	29,574	895.41
1970	..	1094	156,033	3266.40	50,188	1435.74	10,041	291.90	39,075	1146.54
1971	..		N.A.	N.A.			11,445	331.88	..	..
1972	..		N.A.	N.A.			16,416	488.27	..	..
1973	..		N.A.	N.A.			14,245	399.79	..	..
1974	..		165,020	5864.61	53,528	2682.38	9,981	516.31	43,547	2166.07
1975	..						14,307	743.53	..	..

NOTE : FPO Products include all the fruit and vegetable products plus synthetic vinegars, aerated fruit beverages, synthetic syrups and synthetic jellies while fruit and vegetable products exclude these four product groups.

- Source : (i) Directorate of Marketing and Inspection, Nagpur (for data from 1961—70).
(ii) Processed Foods Export Promotion Council, New Delhi (for export data for 1971, 1972 and 1973. In the absence of calendar year figures financial year figures for a particular year say 1971-72 have been taken as calendar year figures).
(iii) Food and Nutrition Board, Ministry of Agriculture and Irrigation, New Delhi (for data for 1974 and 1975).

PRODUCT-WISE AND ZONE-WISE SHARE OF EXPORTS OF PROCESSED FRUITS AND VEGETABLES FROM INDIA (1975)

(Quantity in Percentage)

Ranking of products	Western Zone		Southern Zone		Northern Zone		Eastern Zone		All India					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)				
(1)	Pickles	..	29.8	Mango juice	..	50.9	Mango juice	..	64.4	Mango chutney/ others	49.6	Mango juice	..	29.6
(2)	Mango slices in brine	..	17.4	Pineapple slices/ others	..	16.1	Mango nectar/ other beverages	..	26.4	Pineapple juice/ others	19.3	Pickles	..	16.8
(3)	Mango juice	..	14.3	Mango pulp	..	11.9	Canned vegetables	..	4.2	Pickles	15.4	Mango chutney/ others	..	10.3
(4)	Mango pulp	..	13.3	Mango slices	..	5.1	Dehydrated onions	..	3.7	Pineapple slices/ others	8.9	Mango pulp	..	8.9
(5)	Dehydrated onions	..	7.3	Pickles	..	4.5	Pickles	..	0.7	Canned vegetables	6.5	Mango slices in brine	..	7.8
(6)	Mango chutney/ others	..	6.7	Pineapple juice/ others	..	3.9	Mango pulp	..	0.4	Sauces	0.3	Pineapple slices/ others	..	5.8
(7)	Canned vegetables	..	4.0	Green pepper in brine	..	2.4	Preserves	..	Neg.	Asso. jams	Neg.	Mango nectars/ other beverages	..	5.0
(8)	Mango slices	..	2.1	Pineapple pulp	..	1.6	Dehydrated bindi/ others	..	Neg.	..	..	Dehydrated onions	..	4.1
(9)	Assorted squashes	..	1.7	Assorted squashes	..	1.4	..	..	..	..	..	Pineapple juice/ others	..	3.7
(10)	Pineapple slices/ others	..	1.4	Mango chutneys others	..	0.9	..	..	..	..	..	Canned vegetables	..	3.4
(11)	Mango nectar/ other beverages	..	1.1	Assorted jams	..	0.6	..	..	..	..	..	Mango slices	..	2.2
(12)	Preserves	..	0.6	Dehydrated onions	..	0.5	..	..	..	..	..	Assorted squashes	..	1.1
(13)	Green pepper in brine	..	0.2	Tomato ketchup	..	Neg.	..	..	..	..	..	Green pepper in brine	..	0.7
(14)	Assorted jams	..	0.2	Canned vegetables	..	Neg.	..	..	..	..	..	Pineapple pulp	..	0.4
(15)	Pineapple juice/ others	..	Neg.	Sauces	..	Neg.	..	..	..	..	..	Preserves	..	0.3
(16)	Banana powder	..	Neg.	..	..	..	..	..	..	..	..	Assorted jams	..	0.2
(17)	Tomato ketchup	..	Neg.	..	..	..	..	..	..	..	..	Sauces	..	0.1
(18)	Sauces	..	Neg.	..	..	..	..	..	..	..	..	Dehydrated bindi/ others	..	Neg.
(19)	Mango bar	..	Neg.	..	..	..	..	..	..	..	..	Tomato ketchup	..	Neg.
(20)	Dehydrated bindi/ others	..	Neg.	..	..	..	..	..	..	..	..	Banana powder	..	Neg.
(21)	..	..	..	..	..	..	..	..	..	..	..	Mango bar	..	Neg.

Source : Subsidiary Food and Nutrition Division, Ministry of Agriculture and Irrigation, New Delhi.

ANNEXURE 6

COMPANIES HAVING SUPPLY ARRANGEMENTS WITH THE GROWERS

SOME EXAMPLES

1. Kissan Products Ltd.

(a) Kissan Products Ltd. in association with National Seeds Corporation (NSC) and growers encouraged cultivation of *Pusa Ruby* variety of tomatoes. This variety has good colour and is ideally suited for producing tomato ketchup. National Seeds Corporation has the foundation seeds and tomatoes are grown under the supervision of NSC. Yields of 10 tonnes per acre are obtained.

(b) Kissan would supply wooden crates to the growers (each wooden crate costs Rs 2.50 and holds 18 kg of tomatoes) for enabling the growers to pluck the fruit right away from the plants and place it in the wooden crates. This facilitates minimal handling of the fruit and the quality is preserved.

(c) In January-February season, a price of Rs 0.50 per kg is paid to the growers while in March, April and middle of May, a price of Rs 0.40 per kg is paid. Efforts are also made to grow tomatoes in Kharif season and a price of Rs 0.55 per kg will be paid.

(d) The grower also gets Rs 40.00 per kg of dry seeds supplied to the National Seeds Corporation. Usually, on the dry basis 0.5 per cent of seeds are obtained.

(e) An efficient grower who obtains a yield of 10 tonnes per acre usually gets a net return of Rs 3,000 to Rs 3,500 per acre.

This working arrangement is found good by all the three parties. The grower gets a remunerative price and there is an assumed outlet for his produce. Likewise National Seeds Corporation is able to raise seeds of *Pusa Ruby* variety of tomato. Kissan Products Ltd. are happy to get quality tomatoes for the manufacture of tomato ketchup at a pre-determined price with an assured supply.

2. Himachal Pradesh Marketing Corporation (HPMC)

HPMC is working very closely with the fruit growers in the State to avoid glut in markets and to obtain better returns for their produce. Fresh apples from the State are not only marketed outside the State but also exported to Gulf and other West Asian countries. Processing is undertaken and apple juice is also exported. Marketing advances are provided to growers. Similarly financial assistance is given to forwarding agents and co-operative societies for the supply of packing material. Other assistance to growers include construction of a warehouse at Kiratput mainly

to help the fruit growers of Kulu and Mandi areas. HPMC has also plans to help the individual consumers in urban areas by providing chilled fresh apple juice with the help of dispensers, initially to be installed in Delhi.

3. Corn Products Co. (India) Pvt. Ltd.

This company has its own orange juice crushing plant at Nagpur. The juice is transported to Bombay in wooden

barrels with preservatives already added at the crushing centre. Lemon juice is purchased by the company from an established juice crushing firm for the last 30 years and crushing of juice is undertaken under the supervision of the company's technical personnel. This is an example to show how it is possible to forge supply arrangements. Juice extraction is generally undertaken during the glut season of orange and limes, i.e., during the months of October-December.

Phone : 74238

Trade Mark 'AAR'

Grams: KARIMFRUIT

A. ABDUL RAHMAN SHARIFF & A. ABDUL RAHIM SHARIFF

FRUIT COMMISSION AGENTS

Sethu Rao Street Cross, New C.M.A., Hostel Buildings,
BANGALORE-53

Largest Suppliers of Fruits and Vegetables of all Varieties to Food Processing Industries

ANNEXURE 7

PRODUCT-WISE PATTERN OF PACKAGING OF FRUIT AND VEGETABLE PRODUCTS

Products	Pack size and Unit size
1. Squashes	
(orange, lemon, pineapple, mango, lemon barley, lime juice cordial, lichi, rhoden- dron)	(a) 12 x 600 ml bottle (b) 12 x 650 ml do (c) 12 x 680 g do (d) 12 x 680 ml do
2. Crushes	
(Pineapple, orange, grape)	(a) 6 x 3200 g can (b) 8 x 2640 g do (c) 12 x 680 ml bottle (d) 24 x 850 g can
3. Slices/TITBITS/Segments	
(Pineapple, mango, orange)	(a) 8 x 2550 g can (b) 12 x 650 ml do (c) 12 x 680 g bottle (d) 24 x 850 g can (e) 36 x 567 g bottle (f) 36 x 850 ml do (g) 48 x 450 g can (h) 48 x 460 g do
4. Syrups	
(Khus, orange, pineapple raspberry, rose, lemon, sarasparila, kiskola, pome- granate, gulab, annar)	(a) 12 x 680 ml bottle (b) 12 x 680 g do (c) 24 x 2 lb can (d) 48 x 1 lb do
5. Jams, Jellies and Marmalades	
(Strawberry, apricot, mixed fruit, raspberry, apple, mango, orange, guava jelly and golden mist)	(a) 6 x 7 lb can (b) 6 x 4 kg do (c) 8 x 3400 g bottle (d) 12 x 450 g do (e) 12 x 454 g do (f) 24 x 325 g do (g) 24 x 400 g do (h) 24 x 435 g do (i) 24 x 450 g do (j) 24 x 454 g do (k) 24 x 455 g jar (l) 24 x 455 g can (m) 24 x 1050 g do (n) 24 x 1060 g do (o) 24 x 1078 g do (p) 48 x 450 g bottle (q) 48 x 454 g do (r) 48 x 460 g do

Products**Back size and Unit size****6. Fruits Canned**

(Fruit cocktail, red cherries, peaches, pears)	(a)	24 × 850 g	bottle
	(b)	24 × 850 g	can
	(c)	36 × 575 g	bottle
	(d)	48 × 450 g	do
	(e)	48 × 450 g	can

7. Juices

(Mango nectar, pineapple, tomato, mango, orange, grape)	(a)	6 × 3.2 kg	can
	(b)	8 × 2.65 kg	do
	(c)	8 × 2650 g	do
	(d)	8 × 2550 g	do
	(e)	8 × 2600 g	do
	(f)	12 × 240 ml	bottle
	(g)	24 × 100 ml	do
	(h)	24 × 110 ml	do
	(i)	24 × 800 ml	do
	(j)	24 × 830 g	can
	(k)	24 × 850 g	bottle
	(l)	24 × 850 g	can
	(m)	24 × 2 lb	do
	(n)	48 × 450 ml	bottle
	(o)	48 × 454 g	do
	(p)	48 × 454 g	can
	(q)	48 × 1 lb	can
	(r)	48 × 460 g	bottle
	(s)	96 × 165 ml	do
	(t)	96 × 165 g	can
	(u)	96 × 175 g	do
	(v)	96 × 203 g	do
	(w)	96 × 170 g	can
	(x)	96 × 170 ml	do

8. Fruits in Syrup

(Mango, red cherry, pineapple, papayas).	(a)	455	g	can
	(b)	510	g	do
	(c)	850	g	do

9. Pineapple/Mango Pulp

(a)	6 × 3200 g	can
(b)	8 × 2640 g	do
(c)	8 × 2700 g	do
(d)	8 × 2650 g	do
(e)	24 × 80 g	bottle
(f)	24 × 860 g	do

10. Ketchup/Sauces

(Tomato)	(a)	12 × 700 g	bottle
	(b)	12 × 710 g	do
	(c)	12 × 740 g	do
	(d)	12 × 760 g	do
	(e)	12 × 766 g	do
	(f)	12 × 770 g	do
	(g)	24 × 325 g	do
	(h)	24 × 370 g	do
	(i)	24 × 13 oz.	can
	(j)	24 × 370 g	bottle
	(k)	24 × 800 g	do
	(l)	24 × 360 g	do
	(m)	24 × 340 g	do

Products

Pack size and Unit size

11. *Vinegar*

- (a) 12 x 625 g bottle
- (b) 12 x 650 ml do
- (c) 12 x 680 ml do
- (d) 24 x 1050 g do

12. *Baked Beans in Tomato Sauce*

- (a) 225 g can
- (b) 455 g do
- (c) 850 g do
- (d) 48 x 454 g do
- (e) 48 x 450 g bottle
- (f) 48 x 480 g do
- (g) 96 x 225 g do

13. *Sauces*

(Worcestershire sauce, cooking sauce,
chilli and mayonnaise sauce)

- (a) 160 g bottle
- (b) 170 g do
- (c) 235 g do
- (d) 12 x 270 g can
- (e) 284 g bottle
- (f) 330 g do
- (g) 12 x 680 g do
- (h) 24 x 325 g do
- (i) 24 x 325 g can
- (j) 700 g bottle

14. *Green Peas*

- (a) 24 x 800 g bottle
- (b) 24 x 800 g can
- (c) 24 x 850 g do
- (d) 24 x 2lb. do
- (e) 48 x 425 g do
- (f) 48 x 450 g bottle
- (g) 48 x 454 g can

15. *Sweet Corn*

- .. 460 g can

16. *Baked Beans*

- .. (a) 225 g can
- (b) 460 g do

17. *Tomato Puree*

- .. (a) 212 g can
- (b) 425 g do
- (c) 795 g do
- (d) 24 x 850 g do
- (e) 24 x 2 oz. do
- (f) 48 x 460 g do

18. *Tomato Soup*

- .. (a) 330 g can
- (b) 48 x 450 g do
- (c) 835 g do
- (d) 48 x 460 g do

19. *8 to 8 Sauce*

- .. 240 g bottle

20. *Ravioli, Spaghetti Macaroni with Cheese
in Tomato Sauce*

- (a) 225 g can
- (b) 455 g do
- (c) 510 g do
- (d) 850 g do

Products		Pack size and Unit size		
21.	<i>Corn Cream Style</i>	.. 325	g	can
22.	<i>Mixed Vegetable (Fancy)</i>	(a) 425	g	can
		(b) 795	g	do
23.	<i>Jelly Crystals</i>	1 Pint Packet		
	(Cherry, lemon, orange, raspberry, strawberry)			
21.	<i>Salad Cream</i>	.. 160	g	bottle
25.	<i>Sauerkraut</i>	.. 425	g	can
26.	<i>Soups</i>			
	(Cream soup/soup of tomato, mushroom, asparagus, mixed vegetable, green peas)	(a) 48 x 340	g	bottle
		(b) 48 x 425	g	can
		(c) 48 x 450	g	do
		(d) 48 x 454	g	do
27.	<i>Olives</i>			
	(Stuffed Spanish plain green, plain manzanilla Spanish)	227 ml		bottle
28.	<i>Chutney</i>			
	(Mild hot, sweet, sliced mango)	.. (a) 300	g	bottle
		(b) 480	g	do
		(c) 970	g	do
29.	<i>Pickles</i>			
	(Mango, lime, tender mango)	.. (a) 12 x 450	ml	bottle
		(b) 12 x 550	ml	do
		(c) 24 x 350	g	do
		(d) 24 x 450	g	do
		(e) Loose Pickles		
30.	<i>Vegetable in Brine</i>			
	(Tinda/karela, parwal)	.. (a) 48 x 425	g	can

ANNEXURE 8 (a)

IMPORT REPLENISHMENT ON EXPORT OF PROCESSED FRUITS AND VEGETABLES

(Percentage of FOB Value)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Mango slices in syrup ..	10	10	10	10	10	10	10
Mango pulp ..	10	10	10	10	10	10	10
Mango juice ..	10	10	10	10	15	15	15
Squashes, syrups, crushes, cordials, ready-to-serve beverages, barley water and barrelled juices	10	10	10	10	10	10	10
Jams, jellies, marmalades and fruit cheese	10	10	10	10	10	10	10
Pineapple juice ..	10	10	10	10	15	15	15
Pineapple slices in syrup ..	10	10	10	10	10	10	10
Orange segment in syrup and other canned fruits not elsewhere specified	10	10	10	10	10	10	10
Fruit concentrate, juice concentrate, and Tamarind Concentrate, juice powder and fruit powder (non-synthetic)	10	10	10	10	10	10	10
Other fruit juices, nectars and pulps	10	10	10	10	15	15	15
Tomato products, tomato puree, ketchup, tomato sauce, tomato paste, tomato juice and tomato concentrate	10	10	10	10	10	10	10
Dehydrated fruits and vegetables	10	10	10	10	10	10	10
Frozen fruits and vegetables ..	10	10	10	10	10	10	10
Jelly crystals ..	10	10	10	10	10	10	10
Preserves, candied and crystallised fruits and peels, murabba	10	10	10	10	10	10	10
Banana siters, potato wafers and sago wafers	2	2	2	2	2	2	2
Canned vegetables including green pepper	10	10	10	10	10	10	10
Fruit chutneys all sorts, sauces all sorts, paste other than curry paste	10	10	10	10	10	10	10
Pickles all ..	10	10	10	10	10	10	10

Source : Ministry of Commerce, Government of India, New Delhi, Import Trade Control Policy, Vol. II.

ANNEXURE 8 (b)

RATE OF DRAWBACK UNDER CUSTOMS AND CENTRAL EXCISE DRAWBACK RULES

	1-12-71 to 31-5-73 (Rs. per tonne)	1973-74 (Rs. per quintal)	1974-75 (Rs. per quintal)	1975-76 (Rs. per quintal)	1976-77 (Rs. per quintal)
Fruit preserved and fruit preparations, canned, bottled or otherwise and all sorts of foods not elsewhere specified	Brand rates to be fixed	Brand rates to be fixed	Brand rates to be fixed	Brand rates to be fixed	Brand rates to be fixed
Fruit chutney containing not less than 50% of sugar by weight	41.25	15.84	15.84	15.84	15.84
Jams and jellies containing not less than 60% of sugar by weight	49.50	19.00	19.00	19.00	19.00
Canned fruit in syrup containing—					
(a) not less than 16% of sugar by weight	13.20	5.07	5.07	5.07	5.07
(b) less than 16% but not less than 13.5% of sugar by weight	11.40	4.28	4.28	2.28	4.28
Squashes containing not less than 40% of sugar by weight	33.00	12.67	12.67	12.67	12.67
Fruit syrups, synthetic syrups and sherbat containing not less than 65% of sugar by weight	53.62	20.59	20.59	20.59	20.59
Fruit cordials containing not less than 30% of sugar by weight	24.75	9.50	9.50	9.50	9.50
Fruit crushes containing not less than 55% of sugar by weight	45.37	17.42	17.42	17.42	17.42
Marmalades containing not less than 60% of sugar by weight	49.50	19.00	19.00	19.00	19.00
Candied and crystalised or glazed fruit and peel containing not less than 60% of sugar by weight	49.50	19.00	19.00	19.00	19.00

	1-12-71 to 31-5-73 (Rs. per tonne)	1973-74 (Rs. per quintal)	1974-75 (Rs. per quintal)	1975-76 Rs. per quintal)	1976-77 (Rs. per quintal)
Mango pulp containing—					
(a) not less than 5% of sugar by weight	4.12	1.58	1.58	1.58	1.58
(b) less than 5% but not less than 3% of sugar by weight	2.47	0.95	0.95	0.95	0.95
Fruit preserves containing not less than 60% of sugar by weight	49.50	19.00	19.00	19.00	19.00
Sweetened fruit juices (canned or bottled) containing not less than 10% of sugar by weight	8.25	3.17	3.17	3.17	3.17
Mango nectar (ready to serve beverages) containing not less than 15% of sugar by weight	12.37	4.75	4.75	4.75	4.75
Papaya nectar (ready to serve beverages) containing not less than 15% of sugar by weight	12.37	4.75	4.75	4.75	4.75
Gauva nectar (ready to serve beverages) containing not less than 15% of sugar by weight	12.37	4.75	4.75	4.75	4.75
Grape nectar (ready to serve beverages) containing not less than 15% of sugar by weight	12.37	4.75	4.75	4.75	4.75

NOTE : The above rates are applicable provided these are manufactured in accordance with the provisions of the Fruit Products Order, 1955.

Glass Bottles and Cans

Description	Qty : per tonne				
	1-12-71 to 31-5-73	1973-74	1974-75	1975-76	1976-77
Glass bottles when used for packing other export goods	158.60	160.60	140	140.60	145.00
Bailing hoops, box strapping steel hoops	189.00	393.75	393.75	450.00	450.00 ¹
Sanitary cans, dingley cans (including parts thereof) when exported or used as containers for the export of fruit and vegetable pro- ducts		1185.00	1185.00	1700.00	2235.00 ²
Metal containers all sorts (other than those made of aluminium) ordinarily intended for packaging of goods for sale	1	1	1	1	1

¹ (Provided that the drawback in respect of products covered under sub-serial No. 3603 will be allowed only if these goods are duty paid and rebate of duty paid has been/will be claimed under the Central Excise Rules, 1944). Provided further the exporter has not availed of procedure under rule 12 of rule 191-A of the Central Excise Rules, 1944, in respect of the said duty.

³ Whole of the duty if any paid under item No. 46 of the first schedule to the Central Excises and Salt Act, 1944, plus 2235.00 per tonne provided that where the exporters have not availed of the procedure under rule 12 of rule 191-A of the Central Excise Rules, 1944. The drawback at the rate specified at items (a) and (b) shall apply in toto ; and where the exporter has availed of procedure under either of the said rules or where no duty under item No. 46 of the first schedule to the Central Excises and Salt Act, 1944, has been paid the rate of drawback at rates specified in item (b) above shall apply.

Whole of the duty paid under item No. 46 of the first schedule to the Central Excises and Salt Act, 1944, plus (b) the drawback (at the rate 954.70 per tonne in respect of tinplate container and Rs. 486.00 per tonne ungalvanised, Rs. 760.00 galvanised in respect of steel drums) and the drawback at the appropriate rate, if any, in respect of any other material of which the container is made (Bracket portion is applicable in case of 1976-77 only)—For the other years reference has to be made to the drawback rates for respective years.

Source : Directorate of Duty Drawbacks, Department of Revenue and Insurance, Ministry of Finance, Government of India, New Delhi.

PRODUCT PATTERN OF INDIA'S EXPORTS OF

	1967-68		1968-69		1969-70	
	Qty	Val.	Qty	Val.	Qty	Val.
Mango jam	79	295	100	341	375	1010
Other jams	15	81	27	105	44	146
Mango juice	3936	7931	2921	7397	7620	14946
Other juices	462	823	273	536	900	1668
Fruits preserved by freezing without sugar	..	..	..	..	..	..
Fruits preserved by freezing with sugar	4	19	42	160	3	16
Mango slices in brine ..	149	249	158	391	968	1696
Other fruits in temporary preservative	25	67	76	191	250	640
Fruits in air-tight containers	..	..	32	117	2	8
Fruits, etc. preserved in syrup	149	547	189	687	292	996
Other fruits preserved	42	126	48	313	50	239
Mango chutney/pickles with sugar	1103	3436	1385	4365	1380	4255
Mango chutney/pickles without sugar	319	740	544	1318	588	1668
Other pickles ..	385	1561	641	2659	792	2804
Vegetables preserved or prepared in air-tight container	44	120	105	264	106	250
Vegetable preserved or prepared n.e.s.	74	182	117	233	138	306
Mushrooms ..	18	1855	25	3105	27	3872
Other dehydrated vegetables excl. garlic	2	13	10	78	1	6
Asparagus ..	..	..	..	..	..	..
Total of mango products	4986	12646	5138	13812	10931	23575
Total of vegetables ..	138	2170	257	3680	272	4434
Total of other than mango and vegetables	1082	3224	1328	4768	2333	6517
Total of above ..	6206	18040	6723	22260	13536	34526

Source : Compiled from Monthly Statistics of the Foreign Trade of India.

9 (a)

PROCESSED FRUITS AND VEGETABLES

Qty : Tonnes

Val. : Rs. 000

1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.	Qty	Val.
455	1017	355	1064	634	2168	595	2492	638	3489	608	3246
140	270	72	135	4	27	152	544	355	1688	740	4038
5945	12945	5914	12522	12671	20353	4548	12741	1701	7544	5045	20060
386	766	524	1066	753	1467	138	420	173	635	690	3241
..	..	..	..	neg.	neg.	neg.	1	30	117	4	15
1	10	6	7	27	41	7	44	1	4	neg.	5
516	927	700	1363	1120	2385	929	2093	1525	5132	1404	4637
168	362	211	458	125	419	99	414	618	2483	1267	5603
68	203	9	31	49	583	43	210	109	472	11	56
159	501	388	1209	528	1672	145	723	344	1787	380	2063
22	257	61	470	29	339	400	3013	346	3315	585	8614
1232	3980	1299	4296	1171	4599	1629	6680	2252	10833	2591	13327
802	2329	786	2180	842	2401	617	2154	506	2498	460	2954
1119	3788	445	1970	449	2426	873	4769	909	6265	918	6769
35	129	60	584	65	353	107	307	96	440	158	797
86	206	41	184	94	1040	52	155	186	1024	80	449
19	3228	14	3070	23	4711	22	4920	15	3769	41	10712
342	2520	334	2301	12	82	46	332	484	4984	432	4855
..	..	..	..	..	..	..	..	..	..	6	43
8950	21198	9054	21425	13438	31918	8318	26160	6622	29496	10108	44224
482	6083	449	6139	194	6186	227	5714	781	10217	717	16856
2063	6157	1716	5366	1944	6974	1857	10138	2985	16766	4595	30404
11495	33438	11219	32930	15576	45078	10402	42012	10288	56479	15420	91484

Department of Commercial Intelligence and Statistics, Calcutta.

ANNEXURE 9 (b)

INDIA'S EXPORTS OF FRESH FRUITS AND VEGETABLES

		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
<i>A. Fresh Fruits</i>							
Oranges	..	579	739	317	589	2416	4860
Lemon and limes	..	3	11	13	46	28	150
Other citrus fruits	..	2	4	1	2	2	14
Bananas	..	11	17	3	11	1395	2454
Apples	..	neg.	1	2	19	92	229
Grapes	..	2	13	2	11	50	215
Figs	..	neg.	1	2	1	1	5
Pear quince	..	..	..	25	10	117	76
Peaches	..	..	..	neg.	neg.	..	..
Apricots	..	6	36	17	138	11	62
Sapotas	..	12	27	51	146	62	219
Other stone fruits	..	2	7	8	22	8	21
Berries	..	2	1	5	10	3	9
Dates	..	neg.	neg.	1	1	1	3
Mangoes	..	1717	5355	1619	6835	3906	16141
Pineapples	..	27	79	11	31	110	409
Other tropical fruits	..	17	66	27	105	34	91
Pomegranates	..	neg.	2	neg.	2	1	2
Other fruits	..	125	282	261	853	519	2140
Total of A.	..	2505	6641	2365	8832	8756	27100
<i>B. Fresh Vegetables</i>							
Potato seeds	..	29	33	800	1412	44	110
Potato	..	3785	2356	9356	6867	29817	34817
Cabbages	..	..	..	1	2	502	742
Cauliflowers	..	1	1	..	..	neg.	1
Onions	..	64440	51688	68983	53433	111998	138460
Other vegetables	..	2404	4796	3610	9122	4025	12191
Vegetable frozen	..	1	9	31	140	40	187
Tomatoes fresh	..	..	..	..	..	neg.	neg.
Vegetables in temporary preservative	..	..	..	..	..	10	57
Total of B.	..	70660	58883	82781	71026	146436	186565
Grand Total (A+B)	..	73165	65524	85146	79858	155192	213665

Source : Department of Commercial Intelligence and Statistics, Calcutta.

ANNEXURE 10 (a)

INDIA'S EXPORTS OF PROCESSED FRUITS AND VEGETABLES PRODUCT-WISE AND MAJOR MARKET-WISE

				Qty : Tonnes		Val. : Rs. Thousand	
Product/Country		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
1. Mango Jams							
Saudi Arabia	..	111	468	203	981	337	1613
Kuwait	..	2	12	59	389	67	407
U.S.A.	..	39	234	55	359	48	298
Canada	..	5	32	43	271	44	274
Iraq	..	..	..	..	..	30	145
Singapore	..	..	..	neg.	neg.	9	139
Bahrein Is	..	3	15	3	17	15	83
Total incl. others	..	595	2492	638	3489	608	3246
2. Other Jams							
Saudi Arabia	..	..	..	1	6	259	1208
S. Yemen P. Rep.	..	neg.	1	111	521	103	537
Australia	..	neg.	1	1	2	67	380
Kuwait	..	1	7	neg.	3	56	361
U.S.S.R.	..	..	..	..	..	100	350
U.S.A.	..	53	217	3	39	18	216
U.K.	..	19	99	37	268	14	85
Total incl. others	..	152	544	355	1688	740	4038
3. Mango Juice							
U.S.S.R.	..	2778	6326	..	..	2867	10100
S. Arabia	..	480	1607	224	1010	904	4228
Ethiopia	..	110	348	309	1143	319	1414
Kuwait	..	48	171	122	464	208	870
Dubai	..	44	153	106	433	153	763
U.K.	..	273	1325	295	1606	59	239
Malaysia	..	10	34	14	70	42	213
Total incl. others	..	4548	12741	1701	7544	5045	20060

Product/Country	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
4. Other Juices						
East Germany ..	..	..	..	..	331	1457
S.Yemen P. Rep. ..	4	18	..	..	139	712
Ethiopia ..	..	..	..	..	106	456
S. Arabia ..	..	..	10	46	33	161
Yugoslavia ..	38	94	148	509	19	81
Total incl. others ..	138	420	173	635	690	3241
5. Fruit preserved by freezing without sugar						
Dubai ..	..	..	22	89	4	15
Total incl. others ...	neg.	1	30	118	4	15
6. Fruit preserved by freezing with sugar						
U.K. ..	..	..	..	..	neg.	2
Total incl. others ..	7	44	neg.	4	neg.	5
7. Mango slices in brine						
U.K. ..	661	1330	1229	3967	1069	2903
Arab. Rep. of Egypt ..	..	..	..	..	41	315
Kuwait ..	4	18	69	386	39	244
Saudi Arabia ..	..	..	41	120	45	203
Iraq ..	28	44	44	97	92	184
U.S.A. ..	98	251	38	161	19	176
France ..	..	..	8	61	17	129
Total incl. others ..	929	2093	1525	5132	1404	4637
8. Other fruits in temporary preservative						
East Germany ..	..	..	..	..	404	1927
Kuwait ..	neg.	neg.	45	151	211	880
Dubai ..	5	17	49	243	159	703
Saudi Arabia ..	..	..	87	263	163	630
Ethiopia ..	5	11	8	32	55	261
Bahrein Is. ..	1	5	63	234	54	248
Total incl. others ..	99	414	618	2483	1267	5603

Product /Country	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
9. Fruits in air-tight containers (preserved or prepared n.e.s.)						
Hungary ..	..	..	..	..	8	39
Australia ..	neg.	3	1	6	2	17
Saudi Arabia ..	20	81	49	203	..	..
Kuwait ..	6	35	7	47	..	..
Total incl. others ..	43	210	109	472	11	56
10. Fruit preserved in syrup						
East Germany ..	..	..	..	..	261	1351
Saudi Yemen P. Rep... ..	..	..	..	..	63	303
U.K. ..	75	390	108	703	36	265
Kuwait ..	7	44	22	141	8	58
Total incl. others ..	145	723	344	1787	380	2063
11. Other fruit preserved or prepared						
Bulgaria ..	5	141	21	523	280	4791
Hungary ..	..	..	104	855	74	946
Dubai ..	..	..	..	..	38	697
Nepal ..	150	598	35	221	88	663
Muscat ..	neg.	1	8	157	17	385
Poland ..	237	2300	145	1403	..	..
Total incl. others ..	400	3013	346	3315	585	8614
12. Mango chutney/pickles, etc. with sugar						
U.K. ..	694	2018	1147	3786	1140	3944
U.S.A. ..	248	1712	240	1840	246	2110
Iraq ..	5	16	62	354	230	1407
West Germany ..	111	420	104	492	142	823
Dubai ..	76	318	96	549	133	775
Saudi Arabia ..	53	146	72	355	144	761
Kuwait ..	85	302	86	505	96	588
Total incl. others ..	1629	6680	2252	10833	2591	13327

Product/Country		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
13. <i>Mango chutney/pickles without sugar</i>							
Iraq	..	85	171	1	4	100	698
U.K.	..	246	703	258	946	151	652
Kuwait	..	90	316	24	129	107	603
U.S.A.	..	40	367	40	431	31	359
Australia	..	11	66	8	66	15	202
Total incl. others	..	617	2154	506	2498	460	2954
14. <i>Other pickles</i>							
U.K.	..	375	1563	471	2388	381	1849
Australia	..	33	363	75	1059	73	1165
U.S.A.	..	112	932	90	983	72	885
Canada	..	33	203	60	566	62	680
Dubai	..	26	95	31	206	66	462
Kuwait	..	50	236	35	200	70	444
Bahrein Is.	..	19	77	23	145	46	278
Total incl. others	..	873	4769	909	6265	918	6769
15. <i>Vegetables preserved or prepared in air-tight containers</i>							
U.K.	..	75	213	83	365	90	424
Dubai	..	28	79	10	42	32	160
U.S.A.	..	neg.	1	neg.	2	6	40
Total incl. others	..	107	307	96	440	158	797
16. <i>Vegetables preserved or prepared n.e.s.</i>							
Nepal	..	..	..	67	397	10	91
U.K.	..	25	82	50	336	19	87
United Arab Rep.	..	..	..	23	62	10	58
Kuwait	..	..	..	4	10	13	57
U.S.A.	..	4	28	7	37	8	45
Total incl. others	..	52	155	186	1024	80	449

Product/Country ..	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
17. <i>Mushrooms</i>						
France ...	13	3093	11	2816	38	9938
Switzerland ..	8	1674	3	793	2	616
U.S.A. ..	neg.	113	neg.	93	1	136
Total incl. others ..	22	4921	15	3769	41	10712
18. <i>Other dehydrated vegetables excl. garlic</i>						
U.S.S.R. ..	..	..	123	1494	357	4152
U.K. ..	neg.	1	143	1294	32	293
Japan ..	..	..	..	..	10	120
Muscat ..	..	..	neg.	1	5	68
Australia ..	1	9	55	651	5	65
West Germany ..	16	99	84	853	..	..
Total incl. others ..	46	332	484	4984	432	4855
19. <i>Asparagus</i>						
Malaysia ..	..	..	..	..	4	28
Singapore ..	..	..	..	..	2	15
Total incl. others ..	..	..	..	..	6	43
Total of all others ..	10402	42012	9988	56479	15420	91484

Source : Compiled from Monthly Statistics of the Foreign Trade of India, Department of Commercial Intelligence and Statistics, Calcutta.

ANNEXURE 10 (b)

INDIA'S EXPORTS OF SELECTED PROCESSED FRUITS AND VEGETABLES
—PRODUCT-WISE AND REGION-WISE

Regions	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
1. Mango jams						
Africa ..	4	15	3	15	12	50
North America ..	44	266	98	630	92	572
Latin America ..	..	..	..	..	..	..
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	11	46	6	29	11	153
Other Asian and Oceanian Countries and Antarctic and Arctic regions	123	519	294	1520	480	2392
East European Countries	258	898	..	..	..	..
European Common Market Countries	155	747	237	1287	13	79
European Free Trade Area Countries	..	..	..	..	..	..
Other European Countries	..	..	..	..	..	..
Total ..	595	2492	638	3489	608	3246
2. Manga Juice						
Africa ..	180	578	309	1143	383	1683
North America ..	7	42	44	286	22	128
Latin America ..	..	..	..	..	..	..
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	46	123	33	155	80	391
Other Asian and Oceanian Countries and Antarctic and Arctic regions	956	3194	977	4182	1599	7377
East European Countries	2894	6730	..	..	2897	10196
European Common Market Countries	304	1477	337	1778	61	264
European Free Trade Area Countries	159	594	..	..	..	..
Other European Countries	..	..	..	..	..	..
Total ..	4548	12741	1701	7544	5045	20060

Regions	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
3. <i>Mango slices in brine</i>						
Africa ..	..	..	..	..	46	329
North America ..	121	276	38	162	24	219
Latin America ..	..	..	..	..	..	..
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	1	6	35	165	20	123
Other Asian and Oceanian Countries and Antarctic and Arctic regions	38	101	195	774	203	763
East European Countries	106	374	..	..	..	..
European Common Market Countries	662	1335	1238	4032	1110	3193
European Free Trade Area Countries	..	..	..	..	..	..
Other European Countries	..	..	..	..	..	..
Total ..	929	2093	1525	5132	1404	4637

4. <i>Mango chutney / pickles with sugar</i>						
Africa ..	31	119	27	120	17	134
North America ..	285	1972	301	2365	270	2334
Latin America ..	..	..	..	..	neg.	6
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	107	534	139	959	171	987
Other Asian and Oceanian Countries and Antarctic and Arctic regions	261	949	386	2165	665	3898
East European Countries	..	..	..	..	59	286
European Common Market Countries	926	2972	1371	4952	1388	5470
European Free Trade Area Countries	19	132	27	271	18	210
Other European Countries	neg.	2	..	..	neg.	3
Total ..	1629	6680	2252	10833	2591	13327

Regions		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
5. <i>Mango chutney/pickles without sugar</i>							
Africa	..	4	22	7	22	2	15
North America	..	51	460	60	617	40	474
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	55	135	11	92	25	277
Other Asian and Oceanian Countries and Antarctic and Arctic regions		239	765	161	781	238	1510
East European Countries	..	..	..	..	..	..	..
European Common Market Countries		266	769	269	984	153	666
European Free Trade Area Countries		neg.	1	..	..	..	..
Other European Countries	..	..	..	neg.	1	1	11
Total	..	617	2154	506	2498	460	2954
6. <i>Other jams</i>							
Africa	..	2	10	4	20	26	176
North America	..	54	222	4	47	26	303
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	1	8	2	4	78	433
Other Asian and Oceanian Countries and Antarctic and Arctic regions		77	204	121	577	481	2634
East European Countries		1	7	188	767	110	391
European Common Market Countries		19	99	37	273	17	102
European Free Trade Area Countries	..	..	..	..	..	..	..
Other European Countries	..	..	..	..	..	..	..
Total	..	152	544	355	1688	740	4038

Regions		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
7. Other sauces							
Africa	..	6	34	..	..	115	505
North America	..	1	8	3	12	1	35
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	2	5	4	21	6	39
Other Asian and Oceanian Countries and Antarctic and Arctic regions		10	38	16	89	216	1123
East European Countries		89	194	148	509	350	1538
European Common Market Countries		31	140	1	4	..	..
European Free Trade Area Countries		..	..	..	..	..	..
Other European Countries		..	..	..	..	..	..
Total	..	138	420	173	635	690	3241

8. Other fruits in temporary preservative

Africa	..	10	33	9	34	98	451
North America	..	6	25	40	250	20	119
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	23	93	20	92	37	186
Other Asian and Oceanian Countries and Antarctic and Arctic regions		6	18	344	1355	607	2570
East European Countries	..	..	..	69	298	450	2144
European Common Market Countries		55	241	135	446	54	130
European Free Trade Area Countries		..	..	1	6	..	..
Other European Countries	neg.		1	..	..	1	5
Total	..	99	414	618	2483	1267	5603

Regions		1973-74		1974-75		1975-76	
		Qty	Val.	Qty	Val.	Qty	Val.
9. Other pickles							
Africa	..	13	81	11	68	9	74
North America	..	145	1225	150	1549	134	1565
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	72	586	151	1453	119	1453
Other Asian and Oceanian Countries and Antarctic and Arctic regions		218	823	123	765	248	1626
East European Countries		40	425	..	..	..	..
European Common Market Countries		385	1625	475	2429	408	2046
European Free Trade Area Countries		1	2	1	2	neg.	2
Other European Countries	..	..	..	..	..	..	..
Total	..	873	4769	909	6265	918	6769

10. Fruits preserved in syrup

Africa	..	neg.	1	1	8	..	..
North America	..	13	72	9	62	negl.	2
Latin America	..	..	..	..	..	..	..
Other American Countries	..	..	..	..	..	..	..
ESCAP	..	1	7	10	58	3	21
Other Asian and Oceanian Countries and Antarctic and Arctic regions		10	59	53	278	79	424
East European Countries		41	169	161	664	261	1351
European Common Market Countries		79	414	110	716	36	265
European Free Trade Area Countries		..	..	..	..	..	..
Other European Countries	..	..	..	..	..	..	..
Total	..	145	723	344	1787	380	2063

Regions	1973-74		1974-75		1975-76	
	Qty	Val.	Qty	Val.	Qty	Val.
<i>Mushrooms</i>						
Africa ..	..	..	..	..	..	..
North America ..	neg.	133	neg.	117	1	136
Latin America ..	..	..	..	..	..	..
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	..	..	..	..	..	..
Other Asian and Oceanian Countries and Antarctic and Arctic regions ..	..	..	..	..	neg.	8
East European Countries ..	..	..	..	..	..	..
European Common Market Countries ..	13	3114	11	2861	38	9952
European Free Trade Area Countries ..	8	1674	3	793	2	616
Other European Countries ..	..	..	..	..	..	..
Total ..	22	4920	15	3769	41	10712

2. *Other dehydrated vegetables*

Africa ..	..	..	18	117	..	..
North America ..	21	187	17	148	2	28
Latin America ..	..	..	..	..	..	..
Other American Countries ..	..	..	..	..	..	..
ESCAP ..	8	45	58	670	29	294
Other Asian and Oceanian Countries and Antarctic and Arctic regions ..	..	..	neg.	1	11	88
East European Countries ..	..	..	138	1641	357	4152
European Common Market Countries ..	16	100	253	2405	32	294
European Free Trade Area Countries ..	..	..	..	..	..	..
Other European Countries ..	..	..	..	..	..	..
Total ..	46	332	484	4984	432	4855
Total of 12 Items ..	9793	38282	9520	51107	14576	81505
Total of 17 Items ..	10402	42012	10288	56479	15420	91484

Source : Compiled from the Statistics of Department of Commercial Intelligence and Statistics, Calcutta.

ANNEXURE 11

UNIT VALUE REALISATION OF PROCESSED FRUITS AND VEGETABLES

Rs. per tonne

		1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Mango jams	..	3671	3410	2693	2235	2997	3420	4188	5689	5339
Other jams	..	5400	3889	3318	1929	1875	6750	3579	4755	5457
Mango juice	..	2377	2532	1961	2177	2117	2106	2795	4435	3976
Other juices	..	1781	1963	1853	1984	2034	1948	3043	3671	4697
Fruits preserved by freezing without sugar	..	..	..	..	..	..	..	..	3900	3750
Fruits preserved by freezing with sugar		4750	3810	5333	10000	4500	5857	6286	4000	5000
Mango slices in brine	..	1671	2080	1752	1797	1947	2129	2253	3365	3302
Other fruits in temporary preservative		2680	2513	2560	2155	2171	3352	4182	4018	4422
Fruits in air-tight containers	..	..	3656	4000	2985	3444	11898	4883	4330	5091
Fruits, etc. preserved in syrup		3671	3635	3410	3150	3116	3167	4986	5195	5429
Other fruits preserved	..	3000	6521	4780	11682	7705	11690	7533	9581	14725
Mango chutney/pickles with sugar		3115	3152	3083	3231	3307	3927	4101	4810	5144
Mango chutney/pickles without sugar		2320	2423	2837	2904	2774	2852	3491	4937	6422
Other pickles	..	4055	4148	3540	3385	4427	5403	5463	6892	7374
Vegetable preserved or prepared in air-tight container		2727	2514	2358	3686	9733	5430	2869	4583	5044
Vegetable preserved or prepared n.e.s.		2459	1991	2217	2395	4488	11064	2981	5505	5613
Mushrooms	..	103056	124200	143407	169895	219286	204824	219090	251267	261268
Other dehydrated vegetables excl. garlic		6500	7800	6000	7368	6889	6833	7217	10297	11238
Asparagus	..	..	..	..	..	..	..	..	..	7167
All items	..	<u>2907</u>	<u>3311</u>	<u>2551</u>	<u>2909</u>	<u>2935</u>	<u>2894</u>	<u>4039</u>	<u>5490</u>	<u>5933</u>

Source : Compiled from the Statistics Published by the Department of Commercial Intelligence, and Statistics, Calcutta.

Annexure 12

MARKET OPPORTUNITIES FOR FRUIT AND VEGETABLE PRODUCTS IN MIDDLE EAST

A sales-cum-study team sponsored by the Processed Foods Export Promotion Council visited Middle East Countries during 1976 and outlined market opportunities and scope for India. Some of the salient aspects are as under :—

Kuwait:—In 1976, 9,926 tonnes of fruit juices were imported by Kuwait of which share of India was only 0.6 per cent. While a variety of juices viz. mango, tomato, mixed fruits, pineapple, passion fruit etc. are imported into Kuwait, India's exports are mainly confined to mango juice. But even here India is not having a dominant share. The brand leadership for mango juice is held by Kaha. Japan commands a share of 44 per cent in fruit juices and vegetable juices, Egypt 61 per cent in respect of vegetables frozen or in temporary preserve, Syria accounts for 65 per cent in the case of pickled vegetables, China has a share of 41 per cent in jams, marmalades and fruit preserves and Greece supplies 46 per cent of tomato puree to Kuwait market.

In all these products, share held by India in Kuwait market is negligible. Keeping in view the market requirements in terms of quality, price and packaging, it is necessary for India to intensify marketing efforts and adopt pragmatic strategies and tactics to capture increased share in Kuwait market. India has yet to develop production of tomato puree and paste to cater to export markets and this calls for a total marketing approach right from growing right varie-

ties of tomato, installing suitable machinery for ensuring quality product and finally meeting the consumer requirements.

Saudi Arabia:—India's share in the export of fruit and vegetable products to the Saudi Arabian market is not significant. Mango juice is the only popular item from India in this market whereas a variety of products are supplied by countries like U.S.A., Japan, Lebanon and Taiwan. Efforts should be made to take advantage of the market opportunities thrown open. Packaging needs have to be fulfilled by introducing 'twist off caps' for jam bottles and 10 oz. cans for processed peas.

Indian exporters are indeed facing the problem of long waiting at Jeddah which is causing cost escalation and weakening competitive strength. To overcome this problem, supplies may have to be effected by sending them first to Kuwait or Dubai and then transporting by road to Saudi Arabia.

Dubai:—Considering the total volume of imports into Dubai, India's share is very meagre. There are practically no exports of jams and tomato paste from India. Even in respect of pickles, India's share is less than 30 per cent.

Abu Dhabi:—India's exports are negligible. Japan and Lebanon are major suppliers of fruit juices and vegetable juices while Syria, U.K. and Greece are important suppliers of preserved or prepared vegetables.

Bahrein:—Major requirements of fruit juices of Bahrein market are met by Japan and Formosa while Singapore supplies Rose Syrup. India's exports are very nominal.

From the foregoing, it is clear that ample scope exist for India to take advantage of the vast market potential in the Gulf markets. Geographical contiguity is an important factor to provide competitive edge to Indian products. During the last three years, consumption of fruit and vegetable products in the

Gulf region has been increasing at a very fast rate and India's exports are also on the increase. However, to gain an increased share of this growing market, Indian exporters have to fully understand the consumer requirements as also the competitors' product supremacy and accordingly bring about suitable product and packaging modifications and developments.

Imports into Kuwait, Saudi Arabia, Dubai and Abu Dhabi are shown in the following tables :

TABLE A. *Imports of fruit & Vegetable Products into Kuwait*

Major supplying countries	Fruit juices and vegetable juices	Vegetables frozen or in temporary preserve	Dehydrated vegetables	Other pickled vegetables	Other vegetables preserved or prepared whether or not in air-tight containers	Jams, marmalades and fruit preserve	Tomato puree
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Japan ..	4406 (44.4)	..	..	..	..	..	..
Cyprus ..	1129 (11.4)	..	..	..	..	..	..
Egypt ..	..	438 (61.1)	..	..	..	..	..
Poland ..	..	74 (10.4)	..	..	..	..	..
Bulgaria ..	..	64 (8.9)	..	..	634 (12.5)	..	..
Syria ..	..	..	..	692 (64.7)	..	..	..
China ..	..	..	..	..	1289 (25.4)	541 (41.3)	506 (10.5)
U. K. ..	..	..	..	..	807 (15.9)	..	..
U. S. A. ..	..	..	..	..	639 (12.6)	..	..
Italy ..	..	..	..	..	593 (11.7)	..	877 (18.2)
Australia ..	..	..	..	..	..	273 (20.8)	..
Greece ..	..	..	..	..	..	..	2209 (45.9)
Hungary ..	..	..	..	..	..	..	360 (7.5)
Iran ..	..	..	..	..	..	..	331 (6.9)
India ..	62 (0.6)	0.9 (0.1)	0.3 (4.4)	132 (12.4)	20 (0.4)	4 (0.3)	..
Total ..	9926 (100.0)	715 (100.0)	6 (100.0)	1069 (100.0)	5071 (100.0)	1310 (100.0)	4812 (100.0)

NOTE : Figures in brackets indicate percentage to the total

Source : Report of the Sales-Cum-Study Team to the Middle East, Processed Foods Export Promotion Council, New Delhi.

TABLE B. *Imports of Fruit & Vegetable Products into Saudi Arabia*

Major supplying countries			Fruit juice	Others	Tomato juice	Others	Apricot paste	Syrup of grapes pomegranates & similar fruits
U. S. A.	..	..	273 (28.1)	911 (7.7)	802 (28.7)	228 (4.8)	..	..
Singapore	..	..	168 (17.3)	..	..	..	..	..
China (Formosa)	..	..	130 (13.4)	1215 (10.3)	..	652 (13.7)	..	..
Japan	..	..	108 (11.2)	3350 (28.4)	491 (17.6)	239 (5.0)	..	..
Egypt	..	..	..	1349 (11.4)	144 (5.1)	890 (18.7)	..	..
Netherlands	..	..	..	1221 (10.3)	..	1267 (26.6)	..	..
Lebanon	..	..	..	1080 (9.1)	666 (23.8)	406 (8.5)	..	128 (51.0)
U. K.	..	..	..	771 (6.5)	..	..	..	..
Bulgaria	..	..	..	..	144 (5.1)	..	..	..
France	..	..	..	..	..	200 (4.2)	..	..
Syria	..	..	..	..	..	..	434 (87.9)	..
West Germany	..	..	..	..	..	..	..	56 (22.3)
India	..	..	82 (8.4)	209 (1.8)	81 (2.9)	190 (4.0)	..	..
Total	..	..	969 (100.0)	11814 (100.0)	2800 (100.0)	4763 (100.0)	494 (100.0)	251 (100.0)

NOTE : Figures in brackets indicate percentage to the total.

Source : Report of the Sales-Cum Study Team to the Middle East, Processed Foods Export Promotion Council, New Delhi.

TABLE C. *Imports of Fruit & Vegetable Products into Abu Dhabi*
(January—June 1975)

Major supplying countries		Fruit juices & vegetable juices	Vegetables preserved or prepared
Japan	..	399 (61.70)	..
Lebanon	..	139 (21.58)	..
Syria	..	..	78 (16.9)
U. K.	..	..	67 (14.3)
Greece	..	..	59 (12.8)
China	..	..	40 (8.7)
India	..	7 (1.10)	28 (6.1)
Total		647 (100.0)	461 (100.0)

NOTE : Figures in brackets indicate percentage to the total.

Source : Report of the Sales-Cum-Study Team to the Middle East, Processed Foods Export Promotion Council, New Delhi.

TABLE D. *Imports of Fruit & Vegetable Products into Dubai*

Major supplying countries		Canned fruits	Fruit juices	Jams	Canned vegetables	Tomato paste	Pickles
China	..	938 (29.0)	362 (4.4)	1640 (77.1)	3111 (31.8)	615 (15.9)	232 (19.3)
South Africa	..	494 (15.3)	..	116 (5.45)	..	..	..
Formosa	..	406 (12.5)	291 (3.6)	..	862 (8.8)	..	..
Australia	..	279 (8.6)	..	..	622 (6.4)	..	..
Japan	..	186 (5.7)	5236 (64.2)	..	..	..	..
U. S. A.	..	..	673 (8.3)	..	..	..	274 (22.8)
Italy	..	..	..	..	1264 (12.9)	2966 (76.7)	..
Bulgaria	..	..	..	..	789 (8.1)	162 (4.2)	..
U. K.	..	..	..	118 (5.5)	1510 (15.4)	..	156 (13.0)
India	..	68 (2.1)	103 (1.3)	..	34 (0.3)	..	339 (28.3)
Total	..	3238 (100.0)	8158 (100.0)	2128 (100.0)	9785 (100.0)	3865 (100.0)	1200 (100.0)

NOTE : Figures in brackets indicate percentage to the total.

Source : Report of the Sales-Cum-Study Team to the Middle East, Processed Foods Export Promotion Council, New Delhi.

ANNEXURE 13

SPECIFICATIONS AS PRESCRIBED BY ARMY SERVICE CORPS (ASC) IN RESPECT OF CANNED FRUITS AND VEGETABLES

ASC Specification No. 66 for Fruits Canned (In Syrup)

The following fruits only shall be canned :—

(a) Apricot ; (b) Cherry ; (c) Grapefruit ; (d) Guava (Allahabad type) ; (e) Litchi ; (f) Mango (of approved varieties given in Appendix A) ; (g) Orange (Santra type) ; (h) Papaya ; (i) Peach ; (j) Pear (of varieties given in Appendix A) ; (k) Pineapple ; (l) Plum ; (m) Fruit Cocktail ; (n) Apple ; and (o) Any other fruit acceptable to the Director of Supplies and Transport.

The fruit cocktail shall consist of not less than three and not more than five of any of the following fruits :—

(a) Cherry ; (b) Grape ; (c) Mango ; (d) Orange ; (e) Papaya ; (f) Peach ; (g) Pear ; and (h) Pineapple.

Only fresh fruits of good quality and of the proper stage of maturity shall be canned. The fruits canned shall be in sound condition free from blemishes and damage by insects or disease, discoloration and disintegration as explained in Appendix B.

The fruits canned shall be free from added colouring matter except in the case of cherry where a small quantity of edible colour can be used. No chemical preservative or firming agent shall be permitted. However, in the case of mango slices and papaya, calcium chloride, calcium sulphate, calcium citrate, mono-calcium phosphate, or the combination of these salts may be used

as firming agents. The quantity estimated as total calcium shall not exceed 0.026% by weight of the total contents of the can.

No sweetening agent other than sucrose shall be used.

The fruits shall be prepared in the manner described in Appendix C.

A can shall contain fruit of one variety only except in the case of fruit cocktail.

The fruits canned shall be packed in open top cans using syrup with or without small quantity of citric or tartaric or ascorbic acid or a combination thereof as the packing medium, adequately exhausted and closed by a double seamer. The fruits canned shall then be adequately processed so that the cans shall stand incubation at 37°C for a period of seven days without showing evidence of microbiological growth. If, after incubation for seven days, there is any doubt about the soundness of the can, it shall be subjected to further incubation as also to microbiological examination.

Packing

Cans:—The fruits canned shall be packed in A 2½ plain cans conforming to Drawing No. IND/GS/FD/1 (b). The nett contents of each can shall be not less than 850.0 g.

Cases:—The cans shall be packed in strong wooden cases conforming to speci-

fication No. IND/GS/FD/4 (b), size 4. Each case shall contain 24 cans of one variety of fruits only.

Marking

Cans:—Each can shall be printed, lithographed or stencilled with the following particulars. Printed labels shall not be used.

(a) Description of contents ; (b) Nett weight of contents (in grams) ; (c) Date of manufacture ; (d) Name of manufacturer ; (e) Fruit Products Order No.

In addition, centre of the top plate of each can shall be embossed with code symbols with raised letters for name of firm, name of commodity, date, month and year of manufacture. The detail format of the code would be :—

(a) *Upper line* : Name of the firm represented by 2 alphabets to be allotted by the Technical Standardisation Committee (Foodstuffs), Ministry of Food and Agriculture (Food) and the Director of Supplies and Transport (ST-7), followed by the name of commodity represented by two more alphabets (For code symbols refer to the attached Appendix E).

(b) *Lower line*: This line will depict the date, month and year of manufacture and will carry a maximum of 4 symbols. The date will be shown in full (digits 1 to 9 shall be prefixed with zero), the month will be represented by an alphabet (A or M for January, B or N for February, C or O for March, D or P for April, E or Q for May, F or R for June, G or S for July, H or T for August, I or U for September, J or V for October,

K or W for November, and L or X for December) and the year will be indicated by the last numeral of the year (0 for 1960, 1 for 1961 and so on).

Cases: The following particulars shall be stencilled on one side or each packing case :—

(a) Description of contents : (b) Gross weight (in Kg) ; (c) Number of cans ; (d) Name of manufacturer ; (e) Month of manufacture ; (f) Number and date of Acceptance of Tender.

Warranty

In accordance with the standard warranty clause, Appendix J, warranty period being 9 months.

Hygiene

The fruits canned shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services.

The hygiene requirements in the factory producing fruits canned shall be in accordance with the Appendix H.

Inspection

An inspection shall be carried out by the Director of Supplies and Transport or an Officer acting on his behalf on all supplies tendered for acceptance. The decision of this officer shall be final.

The fruits canned shall conform to the following analysis in a cut-out examination :—

(a) The can, on opening, shall give a negative test for pressure at $27 \pm 2^{\circ}\text{C}$ under normal atmospheric pressure.

(b) Head space not more than 1.6 cm.

(c) Drained weight of fruit drained for 2 minutes on a sieve of 10 meshes to a linear inch and of size 20.3 cm × 20.3 cm not less than 55% of the nett weight except in the case of orange, where the drained weight shall be not less than 50% of the nett weight.

(d) Strength of syrup

(i) For fruits other than pear and fruit cocktail not less than 19%

(ii) For pear and fruit cocktail not less than 15%

(e) In fruit cocktail the component fruits shall conform to the following proportion :—

(i) *Cherry*

Not less than 2 per cent and not more than 6 per cent on drained weight.

(ii) *Grape*

Not less than 7 per cent and not more than 14 per cent on drained weight.

(iii) *Mango*

Not less than 30 per cent and not more than 45 per cent on drained weight.

(iv) *Orange*

Not less than 10 per cent and not more than 25 per cent on drained weight.

(v) *Papaya*

Not less than 25 per cent and not more than 40 per cent on drained weight.

(vi) *Peach*

Not less than 30 per cent and not more than 45 per cent on drained weight.

(vii) *Pear*

Not less than 25 per cent and not more than 40 per cent on drained weight.

(viii) *Pineapple*

Not less than 10 per cent and not more than 30 per cent on drained weight.

(f) The amounts of heavy metals shall not exceed the limits shown in Appendix D.

The methods of analysis used shall be those laid down by the Association of Official Agricultural Chemists (AOAC latest edition) unless otherwise stipulated.

Appendix A to ASC Specification No. 66 for fruits canned (in Syrup)

The following varieties of mango and pear are approved for canning :—

(a) *Mango*

(i) Alfanso

(ii) Banganpalli

(iii) Dusehri

(iv) Safeda

(v) Fazli

(b) *Pear*

(i) William

(ii) Jargonelle

(iii) Nakh Pears

Appendix B to ASC Specification No. 66 for Fruits Canned (in Syrup)

Blemish is a defect due to scab, hail injury, sun-burn, mechanical injury covering an area exceeding 6.0 mm in diameter. Not more than 5 per cent

of drained weight of the fruit shall be permitted as blemished fruit.

Fruit units damaged by insects on physiological disorders shall not be present except in the case of whole fruit units where the affected area shall not exceed 3.0 mm in diameter and not more than 5 per cent of drained weight of the fruit shall be permitted as damaged by insects and physiological disorders.

Uneven distribution of pigments and the change in colour normally associated with proper processing shall not be considered as defects.

Disintegrated fruit means that the fruit has lost the normal shape or form or from which portions have separated. Not more than 5 per cent of such units shall be permitted on drained weight basis. However, in the case of orange not more than 10% of such units shall be permitted.

Remnants, consisting of portions of peel, stones, stone scraping, eyes, seeds, cores, rag and stems shall not exceed 0.5 per cent of the drained weight.

Appendix C to ASC Specification No. 66 Fruits Canned (in Syrup)

The fruits selected for canning shall be of the proper stage of maturity and shall have the characteristic colour, flavour and texture and shall be free from blemishes and damage caused by insects or disease.

The fruit units packed in a can shall be of uniform size and colour.

Preparation of fruits

(a) Apricot — Unpeeled, stones removed, fruit split into halves.

(b) Cherry — Unpeeled, whole, not pitted, stalks removed.

- (c) Grape — Segments separated, fruit and lye peeled and free from alkali, seeds and rag removed.
- (d) Guava — Peeled, cut into halves or quarters, seed removed.
- (e) Litchi — Peeled, seeds removed.
- (f) Mango — Peeled, cut longitudinally into slices of not more than 3.8 cm in width, stone removed.
- (g) Papaya — Peeled, seeds and rag removed, cut into cuboid or triangular or trapezium piece of not more than 4.0 cm and not less than 2.0 cm.
- (h) Peach — Stones removed, fruit split into halves, lye peeled, and free from alkali.
- (j) Pear — Peeled, cored, cut longitudinally into halves or quarters.
- (k) Pine-apple — Peeled, cored, eyes removed, cut transversely into slices of not more than 1.27 cm in thickness. Not more than the equivalent of 2 slices in a can may be in sectors of the same thickness but no sector shall be less than $\frac{1}{4}$ of the size of the slices in the can.
- (l) Plum — Peeled or unpeeled, whole, stalks removed.
- (m) Apple — Properly peeled cores and cut into quarters.

*Appendix D to ASC Specification
No. 66 for Fruits Canned (in Syrup)*

F.D. (M)—47 (Revised)

The limits of heavy metals in processed foodstuffs :—

- (a) Lead — Not more than 2.5 parts per million
- (b) Cop- — Not more than 30 per parts per million
- (c) Zinc — Not more than 50 parts per million
- (d) Tin — Not more than 250 parts per million
- (e) Arse- — Not more than 1.1 nic parts per million

*Appendix E to ASC Specification
No. 66 for Fruits Canned (in Syrup)*

Code symbols in respect of fruits canned (in syrup) :—

<i>Name of commodity</i>		<i>Code symbol</i>
Cherry	—	CY
Guava	—	GY
Goose Berry	—	GB
Litchi	—	LC
Mango	—	MG
Orange	—	OR
Papaya	—	PP
Peaches	—	PC
Pineapple	—	PA
Plum	—	PM
Raspberry	—	RB
Strawberry	—	SB
Apricot	—	AP
Fruit Cocktail	—	FC
Grapefruit	—	GF
Greengages	—	GS
Prunes	—	PN
Pears	—	PR
Nakh Pears	—	NP
Apple	—	AL

** Invitation to Tender No.
dt. Appendix

No. XI to _____

** Acceptance of Tender No.
dt. Appendix

No. J to ASC specification No. _____

Standard Warranty Clause

The contractor warrants the supplies delivered to be sound, wholesome, and fit for human consumption as * _____ for a period of _____ months from the last day of the stipulated month of delivery if the supplies are tendered in the month of manufacture and from the last day of the month of tendering if the supplies are tendered (with prior permission of the Chief Director of Purchase provided that such permission will be deemed to have been granted in cases where delivery period is 15th day or prior of a month) in a month subsequent to the month of manufacture in any climate and under all conditions of storage and movement in India.

In the event of the supplies or a part thereof having been declared during the period of warranty as being unsound, unwholesome or unfit for human consumption as * _____ by the Director of Supplies and Transport, Q.M.G.'s Branch, Army Headquarters, New Delhi or any Officer acting on his behalf (whose opinion as to whether or not the particular complement is sound, wholesome, or fit for human consumption as * _____ will be final), the pur-

* Name of item concerned to be inserted in the blank space.

** To be scored out where not applicable.

chaser will have the right to dispose of the condemned stock in anyway he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase or officer acting on his behalf in regard to these charges will be final.

The declaration by the Chief Director of Purchase or any officer acting on his behalf communicated to the contractor in writing that a particular consignment has been condemned will be taken by the contractor as the conclusive evidence of the proper condemnation of that consignment provided that such communication is issued by the Chief Director of Purchase within 45 days of the expiry of the warranty period. Nothing wherein contained shall prejudice any other right of the purchaser in that behalf under this contract or otherwise.

ASC Specification No. 196 for Vegetables Canned (in Brine)

QUALITY

The following varieties of vegetables only shall be canned :—

- (a) Cabbage (*Brassica oleracea* var. *capitata* L.)
- (b) Carrot (*Daucus carota* L.)
- (c) Cauliflower—(*Brassica oleracea* var. *botrytis* L.)
- (d) Peas (*Pisum sativum*)—Fresh Green Garden Peas only shall be canned.

- (e) Potato (*Solanum tuberosum* L.)
- (f) Spinach (*Spinacea oleracea* L.)
- (g) Karela (*Momordican charantia* L.)
- (h) Parwal (*Tricosanthes dioica* L.)
- (j) French beans (Wax beans or flat fresh beans) (*Phaseolus vulgaris*)
- (k) Tindora commonly known as Kundri (*Coccinia indica* Wight & Arn.)
- (l) Tinda (*Citrullus vulgaris* Schrad, var. *fistulosus*)
- (m) Runner Beans (of tender quality) (*Phaseolus coccineus*)
- (n) Any other vegetable acceptable to the Director of Supplies and Transport.

The vegetables canned shall be in sound condition, free from blemishes and damage by insects or disease, discoloration and disintegration as explained in Appendix A.

The vegetables canned shall be free from added colouring matter, chemical preservative or firming agent. However, in the case of potatoes and cauliflower, calcium chloride, calcium sulphate, calcium citrate, mono calcium phosphate or the combination of these salts may be used as firming agent. The total quantity estimated as calcium shall not exceed 0.051% by weight of the total contents of the can.

The vegetables canned shall have the taste and flavour characteristic of the canned vegetables (in brine) and shall be free from any objectionable flavour.

The vegetables shall be prepared in the manner described in Appendix B.

The vegetables canned shall be packed in open top cans using brine (a dilute common salt solution) with or without a small quantity of sucrose and or citric or tartaric acid or combination thereof not exceeding 0.1% of the packing medium, adequately exhausted and closed by a double seamer. The vegetables canned shall then be adequately processed in a pressure cooker so that the cans shall stand incubation at 37°C and 55°C for a period of seven days without showing evidence of microbiological growth. If, after incubation for seven days, there is any doubt about the soundness of the can, it shall be subjected to further incubation as also to microbiological examination.

Packing

Cans :—The vegetables shall be packed in plain/lacquered A 2½ cans conforming to Drawing No. IND/GS/FD/1 (b). The nett contents of each can shall not be less than 800 g.—Except in the case of tindora, cabbage and spinach where the nett contents shall not be less than 760 grams and potatoes where the nett contents shall not be less than 820 g.

Cases :—The cans shall be packed in wooden cases conforming to specification No. IND/GS/FD/4(b), size 4. Each case shall contain 24 cans. A case shall contain cans of one variety of vegetables only.

Marking

Cans :—Each can shall be printed, lithographed or stencilled with the following particulars. Printed labels shall not be used.

- (a) Description of contents
- (b) Nett weight of contents (in grams)

- (c) Date of manufacture
- (d) Name of manufacturer
- (e) Fruit Products Order No.

In addition, centre of the top plate of each can shall be embossed with code symbols with raised letters for name of firm, name of commodity, date, month and year of manufacture. The detail format of the code would be :—

- (a) *Upper line* :—Name of the firm represented by 2 alphabets to be allotted by Technical Standardisation Committee (Foodstuffs), Ministry of Food and Agriculture (Food), in consultation with the Chief Director of Purchase, Ministry of Food and Agriculture (Food) and Director of Supplies and Transport (St-7), followed by name of commodity represented by two more alphabets (For code symbols, see Appendix D).
- (b) *Lower Line* :—This line will depict the date, month and year of manufacture and will carry a maximum of 4 symbols. The date will be shown in full (digits 1 to 9 shall be prefixed with zero), the month will be represented by an alphabet (A or M for January, B or N for February, C or O for March, D or P for April, E or Q for May, F or R for June, G or S for July, J or T for August, I or U for September, J or V for October, K or W for November and L or X for December) and the year will be indicated by the last numeral of the year (0 for 1960, 1 for 1961 and so on).

Cases

The following particulars shall be stencilled on one side of each packing case :—

- (a) Description of contents
- (b) Gross weight (in Kg)
- (c) Number of cans
- (d) Name of manufacturer
- (e) Month of manufacture
- (f) Warranty expiry date
- (g) Number and date of Acceptance of Tender.

Warranty

In accordance with the Standard Warranty Clause, Appendix J, warranty period being 12 months, except in the case of cauliflower and cabbage where the warranty period shall be 9 months.

Hygiene

The vegetables canned shall be prepared in premises maintained in a hygienic condition which shall be open to inspection at any time by a competent authority approved by the Quartermaster General and the Director of Medical Services.

The hygiene requirements in the factory producing vegetables canned shall be in accordance with Appendix H.

Inspection

An inspection shall be carried out by the Director of Supplies and Transport, or an officer acting on his behalf on all supplies tendered for acceptance. The decision of this officer shall be final. The vegetables canned shall conform to the following analysis in a cut-out examination :—

- (a) The can, on opening, shall give a negative test for pressure at $27 \pm 2^\circ\text{C}$ under normal atmospheric pressure.

- (b) The head space shall not be more than 1.6 cm.
- (c) The weight of the vegetables from a can after draining on a sieve of 10 meshes to a linear inch and of size 20.3 cm $\times$ 20.3 cm for two minutes shall not be less than 60 per cent of the nett weight.
- (d) The percentage of salt in the drained liquid shall not be less than 1.0 and not more than 2.0.
- (e) The amounts of heavy metals shall not exceed the limits shown in Appendix C.

The methods of analysis used shall be those laid down by the Association of Official Agricultural Chemists (AOAC latest edition) unless otherwise stipulated.

Appendix A to ASC Specification No. 196 for Vegetables Canned (in Brine)

Blemish is a defect due to scab, hail injury, sun-burn or mechanical injury covering an area exceeding 0.32 cm in diameter. Not more than 5 per cent of drained weight of the vegetable shall be permitted as a blemished vegetable.

The affected area of vegetable units damaged by insects or physiological disorders shall not exceed 0.32 cm in diameter. Not more than 5 per cent of the drained weight of the vegetable shall be permitted as damaged by insects and physiological disorders.

Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects.

Disintegrated vegetable means that the vegetable units have lost the normal shape or form or from which portions have separated. Not more than 5 per cent

of such units shall be permitted on drained weight basis. However, in case of French Beans, the split beans shall be tolerated up to 15% by weight on the drained weight and beyond 15% split beans shall be regarded as disintegrated. In the case of 'Cauliflower' the Clause 'of from which portions have separated' occurring in the first sentence of this para, shall not apply. The limits of disintegration shall not apply to 'Spinach'.

Remnants consisting of portions of peel, pod, eye, cores, fibre and stems shall not exceed 0.5 per cent of the drained weight.

Note more than 1% of the peas canned shall be brown in colour as calculated on drained weight basis.

Appendix B to ASC Specification No. 196 for Vegetables Canned (in Brine)

The vegetable selected for canning shall be of the proper stage of maturity and shall have the characteristic colour, flavour and texture and shall be free from blemishes and damage by insects or disease. Colour of seeds of Karela and Parwal shall not be red.

The edible portion only of the vegetables shall be canned.

The vegetable units packed in a can shall be of uniform size and colour.

Preparation of vegetables

- (a) Cabbage — Cut or green leaves removed, cut longitudinally in segments of not more than 3.8 cm in width.

- (b) Carrot — Scraped, top and bottom trimmed, then cut transversely into slices of not more than 0.95 cm in thickness and diameter of the slices not less than 1.9 cm and not more than 3.8 cm.

- (c) Cauliflower — Flower head units shall not have more than 1.90 cm of stalk.

- (d) Peas — Depodded and graded.

- (e) Potato — Peeled, eyes removed, whole, halved or quartered, each unit shall not be more than 5.1 cm and not less than 2.54 cm.

- (f) Spinach — Spinach individual leaves without any stalk. Leaves shall be washed free of grit and dirt.

- (g) Karela — The pieces may be either in the form of 'circular discs' or 'truncated cones'. For 'circular discs' the thickness of pieces shall be not more than 1.9 cm and shall not be less than 1.3 cm. Diameter shall not exceed 3.8 cm. For 'truncated cones' height shall not be more than 2.54 cm, largest diameter shall not be more than 3.18 cm, ends shall be removed.

(h) Parwal — The pieces may be either in the form of 'circular discs' or cut longitudinally. For 'circular discs' the thickness shall not exceed 1.27 cm ; diameter shall not exceed 2.54 cm and ends in the shape of cones shall not exceed two per cent of the drained weight of the contents. For 'longitudinally cut pieces' parwal of not more than 2.54 cm in diameter shall only be used and ends shall be removed.

(j) French Beans or Wax Beans — French Beans of either variety shall be tender, properly destripped and snapped into pieces of about 25 cm length and shall not leave fibrous residue on chewing.

(k) Tinda — Properly peeled, halved or quartered tinda of size 4 cm-7 cm. Halves and quarters, however, shall not be packed together.

(l) Tindora — (Kundri) — Ends removed, whole or longitudinally cut into two halves.

(m) Runner— Beans — Ends and strings removed, snapped or cut into pieces of not more than 3.8 cm in length.

Appendix C to ASC Specification No. 196 for Vegetables Canned (in Brine)

The limits of heavy metals in processed foodstuffs :—

- (a) Lead — not more than 2.5 parts per million
- (b) Copper — not more than 30 parts per million
- (c) Zinc — not more than 50 parts per million
- (d) Tin — not more than 250 parts per million
- (e) Arsenic — not more than 1.1 parts per million

Appendix D to ASC Specification No. 196 for Vegetables Canned (in Brine)

Code symbols in respect of vegetables canned (in brine) :—

<i>Name of commodity</i>	<i>Code symbol</i>
Brinjal	BJ
Cabbage	CG
Carrot	CT
Cauliflower	CF
Cluster Beans	CB
Karela	KR
Okra (Ladies Finger)	OK
Parwal	PW
Peas	PS
Potatoes	PT
Spinach	SP
Tinda	TD
Tomatoes	TT
French Beans Wax	FBW
Tindora (Kundri)	TR
French Beans Flat	FBF

** Invitation to Tender No.

dt. Appendix

No. XI to _____

** Acceptance of Tender No.

dt. Appendix

No. J to ASC Specification No. _____

Standard Warranty Clause

1. The contractor warrants the supplies delivered to be sound, wholesome, and fit for human consumption as *_____, for a period of _____ months from the last day of the stipulated month of delivery if the supplies are tendered in the month of manufacture and from the last day of the month of tendering if the supplies are tendered (with prior permission of the Chief Director of Purchase provided that such permission will be deemed to have been granted in cases where delivery period is 15th day or prior of a month) in a month subsequent to the month of manufacture in any climate and under all conditions of storage and movement in India.

2. In the event of the supplies or a part thereof having been declared during the period of warranty as being unsound, unwholesome or unfit for human consumption as *_____, by the Director of Supplies and Transport,

Q.M.G.'s Branch, Army Headquarters, New Delhi or any Officer acting on his behalf (whose opinion as to whether or not the particular consignment is sound, wholesome, or fit for human consumption as *_____, will be final), the purchaser will have the right to dispose of the condemned stock in anyway he considers necessary after giving due notice to the contractor and also, at his discretion, either to allow the contractor to replace the condemned stock within a specified period or to recover from the contractor the contract price thereof together with all incidental and freight charges incurred from the place of delivery to the place where the supplies were ultimately condemned. The opinion of the Chief Director of Purchase or officer acting on his behalf in regard to these charges will be final.

3. The declaration by the Chief Director of Purchase or any officer acting on his behalf communicated to the contractor in writing that a particular consignment has been condemned will be taken by the contractor as the conclusive evidence of the proper condemnation of that consignment provided that such communication is issued by the Chief Director of Purchase within 45 days of the expiry of the warranty period. Nothing wherein contained shall prejudice any other right of the purchaser in that behalf under the contract or otherwise.

This specification must be returned to the Ministry of Food and Agriculture (Department of Food), Army Purchase Organisation.

* Name of item concerned to be inserted in the blank space.

** To be scored out where not applicable.

APPENDIX H

To Army Service Corps

SPECIFICATION No. ———

Standard for Minimum Requirements of Hygiene in Food Factories

To ensure the Standard of Hygiene in a factory the following are the minimum requirements :—

- (i) An adequate supply of potable water which shall be periodically tested and certified as free from injurious bacteria and substances by a Public Health Laboratory.
- (ii) An efficient drainage system with proper methods of disposal of waste water.
- (iii) A proper conservancy system adequately serviced, with approved methods of disposal of filth and refuse.
- (iv) Flyproofing of factory premises to the extent necessary to protect raw material during storage and processing, and the manufactured product until it has been packed and the containers sealed.

(v) Additional special hygiene precautions are necessary when waste products which are dangerous or likely to create conditions which are dangerous to health are produced at any stage during the handling of raw materials or its manufacture.

(vi) So far as the health of employees is concerned, periodic medical examination should ensure that no individual is employed who is suffering from infectious or communicable disease, or who suffers from any disability, for example, 'running sores', which is likely to result in contamination of the raw material, implements, equipment or finished products.

(vii) Adequate standards of lighting (natural and artificial) in all working parts of the factory, together with adequate ventilation, sufficient space for and protection from machinery.

Provision for personal hygiene of employees will include washing facilities (soap, basin or taps, and nail-brushes) and two sets of clean clothing for each employee for use only in the factory.

ANNEXURE 14

GROWTH OF INCOME-TAX ASSESSEES (INDIVIDUALS AND HINDU UNDIVIDED FAMILIES) AND GROSS INCOMES ASSESSED AND THE PER CAPITA FAMILY INCOME (1960-61 TO 1974-75)

Year	Number of Assesseees		Total (1+2)	Gross Income Assessed		Total (5+6)	Per Capita Family In- come Rs. (000)(7÷4)
	Individuals	Hindu un- divided families		Rs (000) Individuals	Hindu un- divided families		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1960-61 ..	1264688	140071	1404759	7819296	892917	8712213	6.202
1961-62 ..	1432032	147881	1579913	8909412	980089	9889501	6.260
1962-63 ..	1469458	147662	1617120	9299587	961071	10260658	6.345
1963-64 ..	1556642	143286	1699928	9649637	907028	10556665	6.210
1964-65 ..	1810359	146476	1956835	10981628	951583	11933211	6.098
1965-66 ..	2111058	177138	2288196	12887360	1121149	14008509	6.122
1966-67 ..	2131201	152740	2283941	15084488	1150625	16235113	7.108
1967-68 ..	2040914	140894	2181808	15354653	1141174	16495827	7.561
1968-69 ..	2473234	165924	2639158	19331070	1398417	20729487	7.855
1969-70 ..	2531034	163785	2694819	20228755	1470889	21699644	8.052
1971-72 ..	2643513	146984	2790497	24296665	1549576	25846241	9.262
1972-73 ..	2459991	112295	2572286	21887751	1120402	23008153	8.945
1974-75 ..	2614341	121656	2735997	25408967	1285502	26694469	9.757

Source : All India Income-Tax Statistics, Directorate of Inspection (Research, Statistics and Publication), New De.hi,

ANNEXURE 15 (a)

**LIST OF FRUIT AND VEGETABLE PROCESSING/MARKETING
UNITS AND MANUFACTURERS OF PACKAGING MATERIALS CONTACTED
DURING THE SURVEY**

Name and address of the Unit	Persons Contacted
<i>Delhi</i>	
Northland Industries, 2254, Rajguru Road, Chuna Mandi, New Delhi-110055	Shri Y. K. Kapoor, Partner.
Midland Fruit and Vegetable Products India (Pvt.), Ltd. P.O. Okhla Industrial Estate, New Delhi-110020.	Shri N. P. Bhargava
T.D. Bhawandas, Stockists, Qutab Road, Delhi-110006.	Shri R.P. Oberoi, Proprietor.
<i>Haryana State</i>	
Panipat Foods Ltd., G.T. Road, Panipat.	Shri A. K. Shingla, Director. Shri A. V. Deva, Food Technologist, Prod. In- charge.
Depro Foods Ltd., 20th Mile, G.T. Road, Rai, Near Sonapat.	Shri M. P. Mittal, Managing Director.
<i>Karnataka State</i>	
Kissan Products Ltd., Old Madras Road, Bangalore- 560016.	Shri V. B. Oberoi, General Sales Manager.
Karnataka Agro Industries Corporation Limited, Hebbal, Bangalore-560024.	Shri V. C. Mamadapur, Manager (Fruit Process- ing).
The Coorg Orange Growers' Co-operative Society Ltd., Gonikopal.	Dr. G. S. Siddappa, Production Manager.
The Coorg Fruit and Vegetable Co-operative Processing Society Ltd., Kushalnagar.	Shri R. Subrahmanyam, Marketing Manager.
Cleanfoods Corporation Ltd., Old Madras Road, Banga- lore-560025.	Shri S. Edwin Vasanth Kumar, Proprietor.
Kamadhenu Co-operative Dairy and Fruit Processing Society Ltd., Sirsi, North Kanara.	
<i>Kerala State</i>	
Darlco Cannings Ltd., Moospet Road, Trichur-680005	Shri M. J. Thomas, Secretary, Shri Jose Daniel, Manager (Administration).
The Canning Industries Cochin Ltd., Volorkavu, Trichur- 680006.	Shri C. V. Paul, Manager.
Pio Food Packers, Kuriachira, Trichur-680006	Shri J. Pullikkan Shri P. G. Sreedharan Nair

Name and address of the Unit

Persons Contacted

Kaycee Plantations and Cannings, Masjid Road, Trichur-680001. Shri K. C. Manun, Partner.

Malabar Fruit Products Co., Bharananganam, P.O. Box 1, Kottayam.

Maharashtra State

James Smith & Co. (Manufacturers' 'SIL' Food Products), Props : Rallis India Ltd., 9-A, Sewree Road, Bombay-400015. Shri P. N. Seth, Factory Manager.
Shri Karnik

Corn Products Co. (India) Pvt. Ltd., Shreeniwas House, H. Somani Marg, Fort, Bombay-400001. Shri V. N. Kamdar, Financial Director.

Maharashtra Agro-Industries Development Corporation Ltd., Rajan House, 3rd Floor, Near Century Bazar, Prabhadevi, Bombay-400025. Shri K. Rajan, Managing Director.
Shri G. P. Phatak, Accounts Officer (Cost)
Shri P. R. Kondekar, Assistant Account Officer (Cost).

Dr. Writer's Chocolates & Canning Co., Dadar, Bombay-400028. Shri K. S. Desai

Herbertsons Ltd., Ewart House, Homi Mody Street, Fort, Bombay-400023. Shri V. A. Castellino, Managing Director.
Shri L. K. Shah, Production Manager.
Shri V. K. Rekhi, Brand Manager.

Apar Pvt. Ltd. (Saras Foods Division), 24, Sayed Abdulla Brelvi Road, Bombay-400001. Shri M. V. Mehta, General Manager.
Shri J. K. Shah, Export Manager.

Asian Dehydrates Ltd., 221, Dr. D.N. Road, Bombay-400001. Shri Pai, Manager.

Eagle Food Products Co., R.N. Rustomji & Co., Shree Nivas House, P.O. Box No. 884, P. Thakordas Road, Bombay-400001. Shri R. N. Rustomji

American Dry Fruit Stores, 44-A, Cawasji Patel Street, Fort, Bombay-400001. Shri Ashok H. Thakkar, Partner.

Merwanjee Poonjiajee & Sons Pvt. Ltd., Poonjiajee Building, Princes Dock, Frere Road, Bombay-400009. Shri N. C. Patel, Director.

Tata Oil Mills Co. Ltd., Bombay House, 24, Homi Mody Street, Fort, Bombay-400023. Shri N.A. Pandit
Shri A. P. Mukhi

Akbarallys, 45, Veer Nariman Road, Bombay-400023. Shri F. T. Khoratiwala, President.

A. Kalvert & Co., 90-92, Mazagaon Road, Bombay-400010. Shri Akberali A. Kalvert, Sp. Executive Magistrate.

Mrs N. Fernandes, 19, Frere Road, Kirkee, Pune-411003.

Punjab State

Markfed Canneries, G.T. Road, Jullundur. Shri Man Mohan Singh, General Manager.

Uttar Pradesh

U.P. State Agro Industrial Corporation Ltd., 22, Vidhan Sabha Marg, Post Box No. 261, Lucknow-226001. Shri B. C. Goel, General Manager.

Mohan Meakin Breweries Ltd., Mohan Nagar, Ghaziabad. Shri O. P. Dang, Chief Food Technologist.

Allahabad Canning Co., P.O. Bamrauli, Allahabad. Shri S. K. Jhunjhunwala, General Manager.

Name and address of the Unit**Personnel Contracted****West Bengal State**

Mitter Sircar & Co., 680, Serpentine Lane, Calcutta-700014. Shri A. K. Mitter, Proprietor.
Tims Products Ltd., Old Nimta Road, Belgharia, Calcutta-700056. Shri V. L. Sharda, General Secretary.
Khanyalal Kishorilal, 5, Dharmatalla Street, Calcutta-1. Shri Sharma

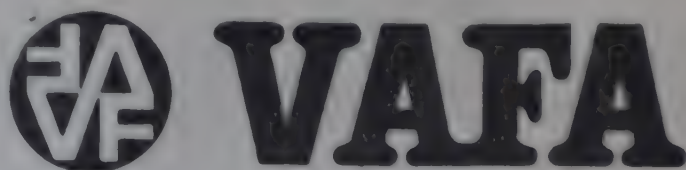
Manufacturers of Packaging Materials**Name and address of the Organisation****Person Contacted**

Mahalakshmi Glass Works Ltd., Dr E. Moses Road, Bombay-400011. Shri Ramesh Chand, Director
Poysha Industrial Co. Ltd., Tiecicon House, Dr E. Moses Road, Bombay-400011.
Vitrum Glass, Vikroli, Bombay-400078. Shri T. Lakshmana Rao
Larsen & Toubro Ltd., Bombay Regional Office, 'Bakhtewar', 8th Floor, Nariman Point, Bombay-400021. Shri G. H. Hiranandani, Bottle Closures Section.
Metal Box Co. of India Ltd., Post Box 16729, Barlow House, Calcutta-700001. Shri P. R. Das, Director.
Shri T. R. Krishnan
Alembic Glass Industries Ltd., White field, Bangalore. Shri Parekh

ANNEXURE 15 (b)

LIST OF GOVERNMENT DEPARTMENTS AND OTHER ORGANISATIONS CONTACTED DURING THE SURVEY

Name and address of the Organisation	Persons Contacted
Subsidiary Food and Nutrition Division, Department of Food, Ministry of Agriculture and Irrigation, Krishi Bhavan, New Delhi-110001.	Shri Dayanand, Director, Fruit and Vegetable Preservation. Shri M. Bhatia, Deputy Director.
Director (Horticulture), Ministry of Agriculture and Irrigation, Krishi Bhavan, New Delhi-110001.	Dr. J. P. Nauriyal, Director.
Processed Foods Export Promotion Council, 105, New Delhi House, 27, Barakhamba Road, New Delhi-110001.	Shri P. S. Srinivasan, Secretary.
Directorate of Excise and Customs, Central Statistics and Intelligence, Ministry of Finance, Central Revenue Building, Bahadur Shah zafar Marg, New Delhi-110001.	Shri B. N. Rangwani, Director. Shri B. L. Sud, Chief Statistical Officer.
Directorate of Inspection (Research, Statistics and Publication), Bahadur Shah Zafar Marg, New Delhi-110001.	Shri Barinder Singh, Statistician.
Army Purchase Organisation, Department of Food, Ministry of Agriculture and Irrigation, Krishi Bhavan, New Delhi.	Brig D. S. Rao, Chief Director (Purchase).
Canteen Stores Department, Quarter Master General Branch (Q/CAN), Army Head Quarters, DHQ P.O., New Delhi-110011.	Lt. Col. Ram Chander, Chief Canteen Officer.
Department of Tourism, Ministry of Tourism and Civil Aviation, Transport Bhavan, Parliament Street, New Delhi.	Shri K. Kumar, Assistant Director, Smt. V. Arni, Assistant Director
All India Food Preservers' Association, 2254, Rajguru Road, Chuna Mandi, New Delhi-110055.	Shri Y. K. Kapoor, Hon. Secretary, Shri H. C. Bhatnagar, Consultant.
The Federation of Hotel and Restaurant Associations of India, 503/56, Nehru Place, New Delhi-110024.	Shri B. S. Chadha, Executive Secretary.
Ashoka Hotel, Chanakyapuri, New Delhi	Shri D. L. Kalra, Deputy Manager (Purchases).
East India Hotels, Oberoi Maidens Hotel, Alipore Road, Delhi.	Shri K. K. Mehra, Vice-President (Central Purchasing)
Hotel Oberoi Intercontinental, New Delhi.	Shri S. C. Jetley, Fruit and Vegetable Controller.
Central Food Technological Research Institute, Mysore . .	Dr. B.L. Amla, Director Dr. Potty Dr. M. V. Patwardhan Dr. M. Mahadevaiah Shri A.M. Nanjundaswamy
Indian Institute of Packaging, Plot 2-E, Marol Industrial Estate, Andheri (East), Bombay-400093.	Shri Subrahmanyam, Deputy Director.



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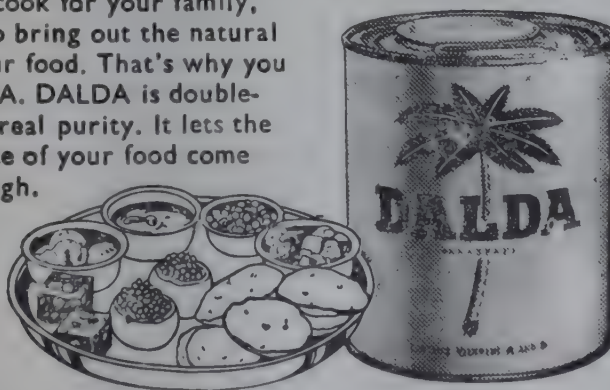
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Nature gives every food its own special taste—a taste that can often be masked by using an inferior cooking medium. When you cook for your family, you want to bring out the natural taste of your food. That's why you need DALDA. DALDA is double-refined for real purity. It lets the natural taste of your food come right through.



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Squashes: Orange, Lemon, Mango, Pineapple, etc.

And also Sauces, Jelly Crystals, Peanut butter, Pearl Onion, Salmons, etc.

Statement about ownership and other particulars about newspaper INDIAN FOOD PACKER to be published in the first issue every year after last day of February.

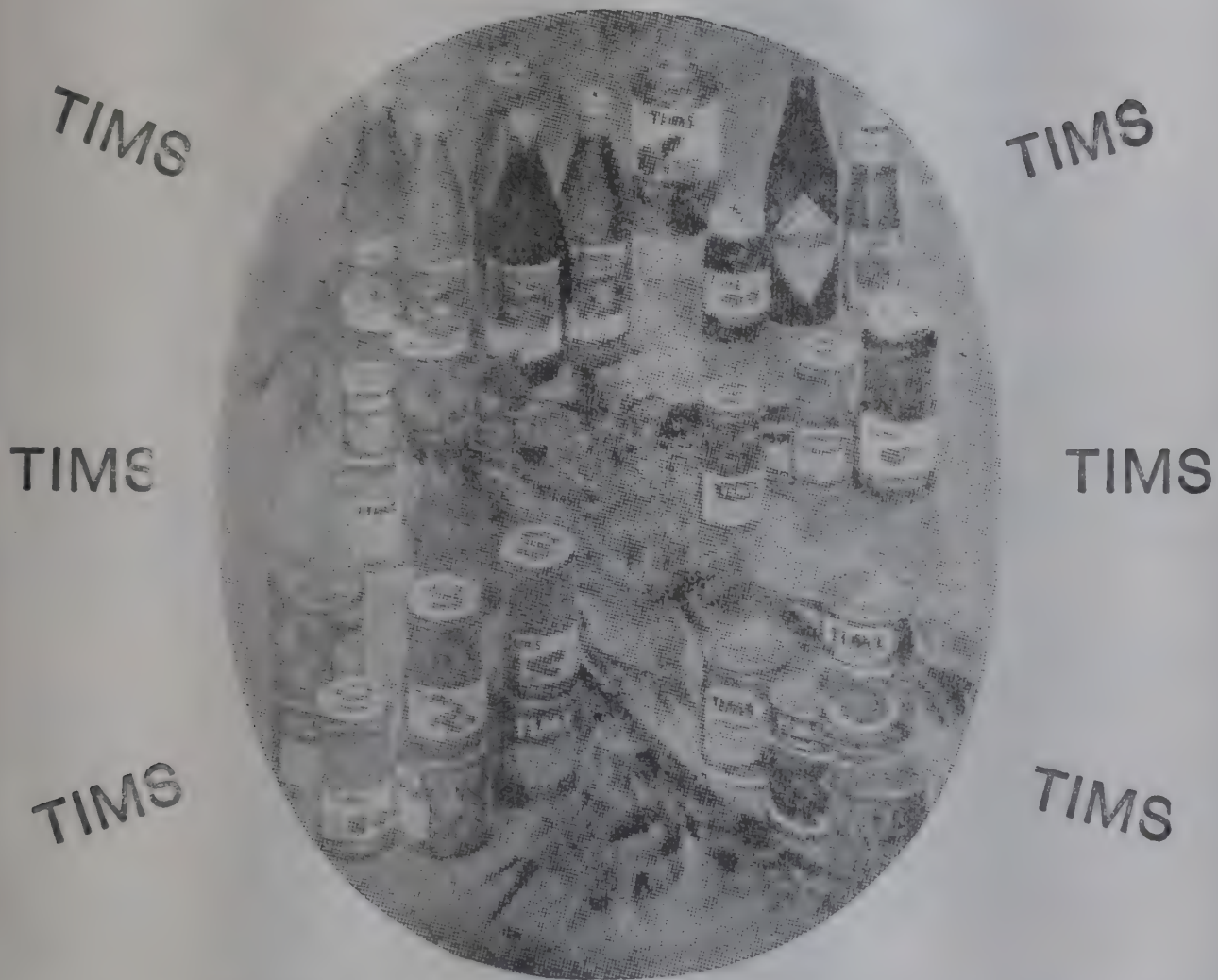
FORM IV (See Rule 8)

- | | |
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| Nationality | Indian |
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| 6. Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital. | The Indian Food Packer is the official organ of the All India Food Preservers' Association, Bombay-1. |

I, V. B. Oberoi, hereby declare that the particulars given above are true to the best of my knowledge and belief.

V. B. OBEROI
Signature of Publisher

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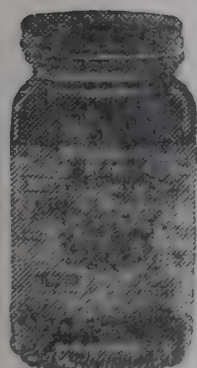
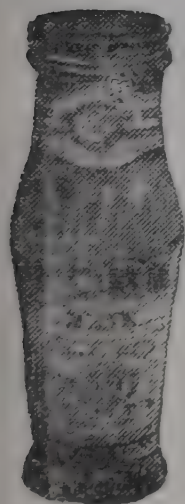
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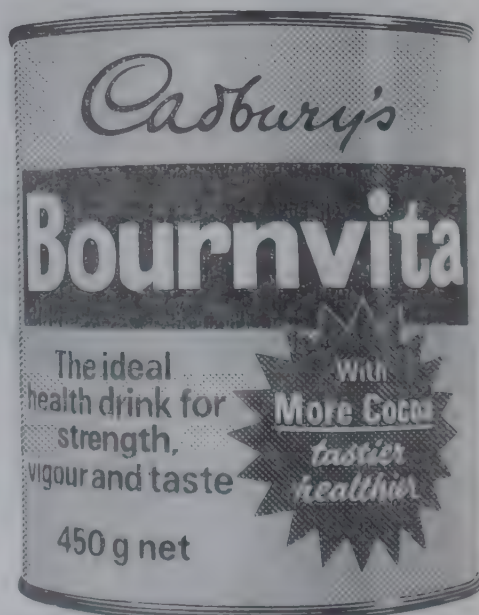
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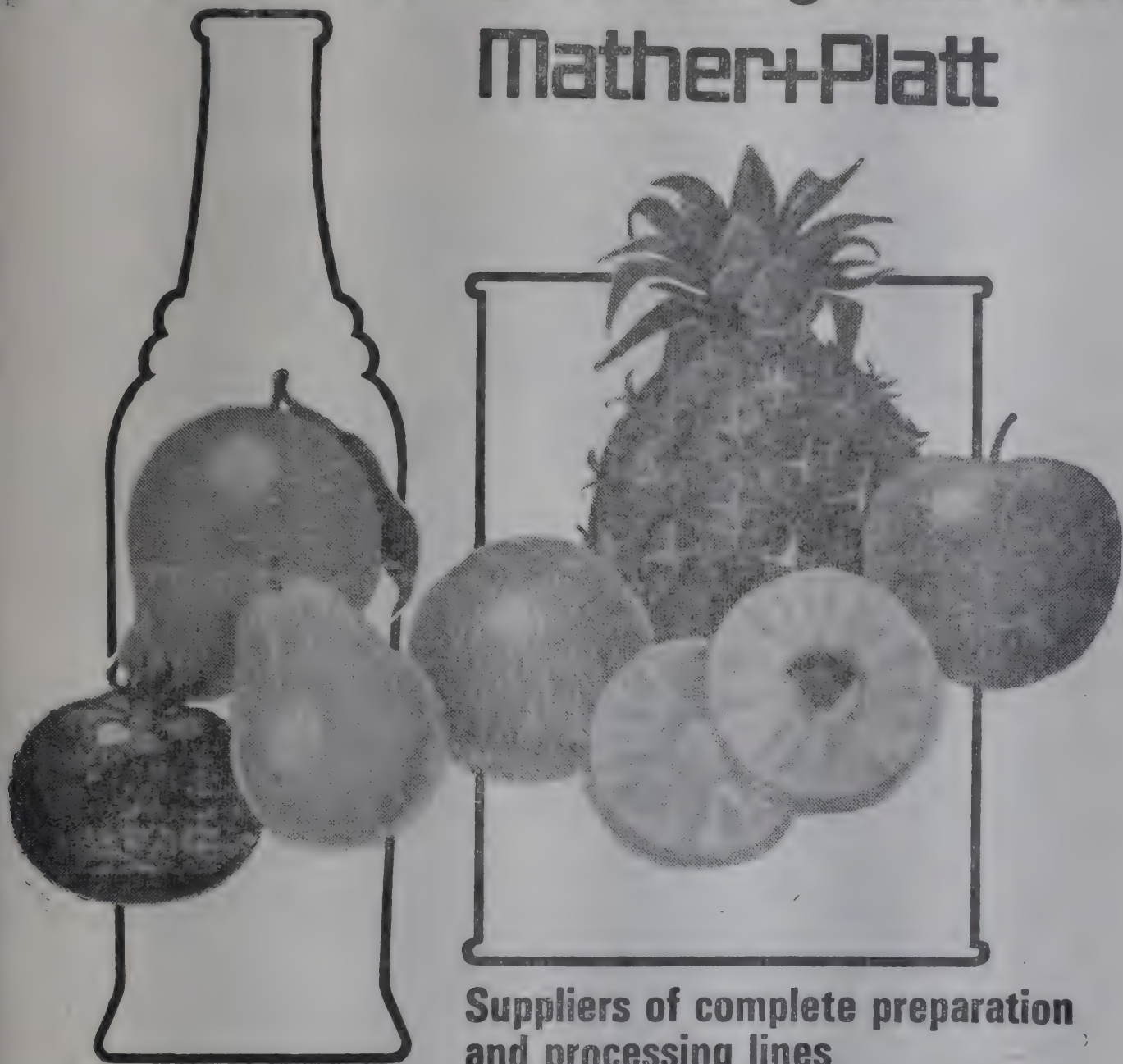
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Shira Mix

Savouries:

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Dosai Mix
Vadai Mix
Pakora (Bhajia) Mix
Sambhar Mix

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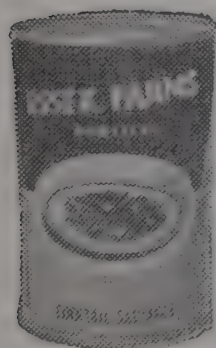
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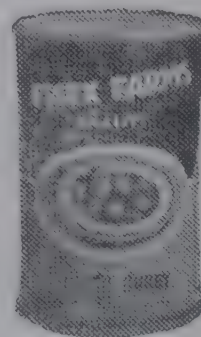
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Chicken with Souffle Topping

1 small chicken boiled and diced
2 large capsicums sliced
1 medium onion chopped
150 gm cabbage shredded
6 cloves garlic
 $\frac{3}{4}$ tbsp oil, $\frac{1}{2}$ tsp salt
2 tbsp Amul Cheese Powder
50 gm grated Amul Cheese
4 large eggs
Chopped green coriander
Green chillies(optional)

In a large pan heat the garlic in oil. Add onions, brown a little, add the rest of the ingredients except last four. Fry till the vegetables are cooked but still crisp. Pour into a deep oven-proof dish.

Separate the whites and yolks of the eggs. Beat egg whites stiff with a little salt, beat in yolks. Pour over the chicken vegetable mixture. Sprinkle grated Cheese. Bake in a hot oven Gas 5 (190°C) for about half an hour till eggs set. Sprinkle coriander and chillies. Serve with garlic bread.

Amul Cheese Macaroni

225 gm macaroni
100 gm ($\frac{1}{2}$ cup) Amul Cheese
90 ml milk
20 gm butter
One onion, one egg
Salt, pepper, mustard to taste

Put macaroni in boiling, salty water and cook. Drain in colander, pouring generous helpings of water to avoid sticking. Grease a pie-dish and place half the macaroni in a layer. See that there are no open spaces left. Pour some milk, sprinkle pepper, salt, mustard. Sprinkle grated Amul Cheese and a little beaten egg. Top with remaining macaroni, add rest of the milk, pepper, salt, mustard, beaten eggs, grated Cheese. Dot with butter. Place in a moderate oven to bake. Serve hot with tomato sauce.

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Amul Cheese Loaf

One loaf tin
400 gm boiled potatoes cut into thick slices
200 gm skinned and sliced tomatoes
Butter or margarine
Toast crumbs.

Cheese Sauce: 30 gm margarine, 30 gm flour, $\frac{1}{2}$ pint milk, 60 gm Amul Cheese.

For Cheese Sauce, melt margarine or butter, stir flour, add milk slowly and grated Cheese. Cook on a slow fire till Cheese melts.

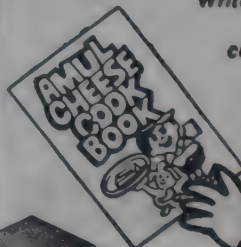
Apply butter or margarine on tin. Coat with crumbs. Arrange a layer of sliced potatoes, tomatoes. Cover each layer with thick Cheese Sauce. Cover tin with foil and bake for 45 minutes Gas 4 (190°C). Turn out and serve with crisp salad and buttered toast.

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